

(16,336.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1897.

No. 198.

WILLIAM WHEELER HUBBELL, APPELLANT,

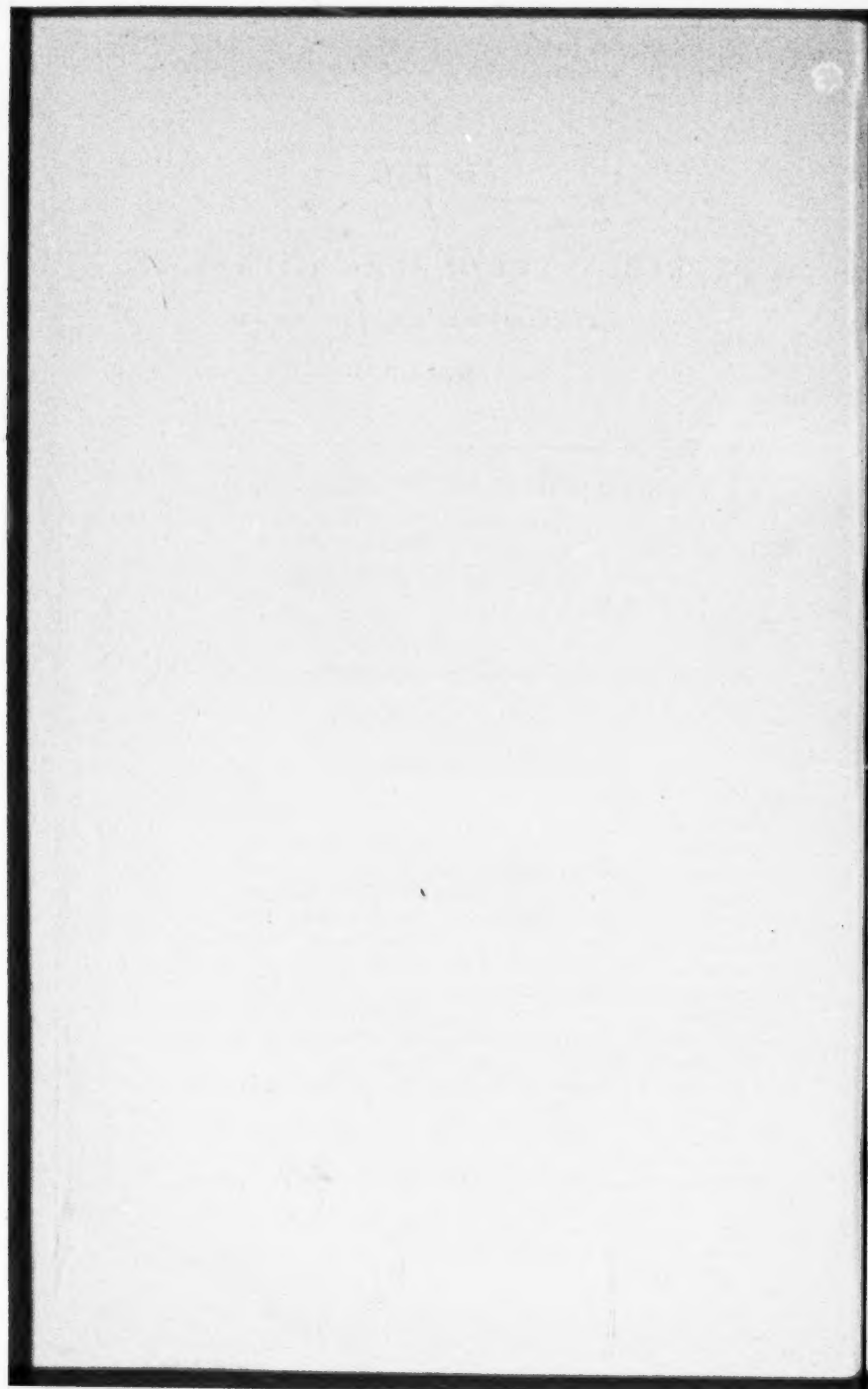
vs.

THE UNITED STATES.

APPEAL FROM THE COURT OF CLAIMS.

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1 United States Court of Claims.

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|-------------------------|-------------------------|
| WILLIAM WHEELER HUBBELL | } No. 16261. Filed June |
| against | |
| THE UNITED STATES. | 11th, 1888.—J. R. |

Petition.

To the honorable the judges of the Court of Claims :

I. The petition of William Wheeler Hubbell respectfully represents that—

Now, and since the year 1880, he has been a resident of Appomattox county, State of Virginia; prior to that, from 1875, a resident of Washington, D. C., and previous to 1875, a resident of Philadelphia, Pennsylvania.

II. That your petitioner is a citizen of the United States, born on March 4th, 1821, at Philadelphia, Pennsylvania.

Your petitioner is the first and original inventor of an "improvement in cartridges," for which letters patent of the United States were granted to him in due form of law, and according to law, dated and issued the 18th day of February, A. D. 1879, vesting in him the exclusive right to make, vend, and use the same for seventeen years from the date thereof.

III. That the said invention is of the kind known as the centre-fire or centre-primed, enclosed or fire-tight metallic cartridge for firearms, for infantry and for cavalry service, as distinguished from rim-fire.

That your petitioner was the first and original inventor of the centre-primed, enclosed cartridge, essentially the same in principle of priming in a small chamber in the bottom, and combustion of charge, as early as February 8th, 1842, the first in the world, with a machine breech-loading gun to use the same, fired by a pointed drill or striker; the original specification of which, duly proved and tested, he filed in the Patent Office, caveat archives, on April 13th, 1865; on which same day he also filed his application for letters patent of the United States for his invention of the cartridge, as improved and constructed with a metallic case, adapted to infantry and cavalry firearms service.

2 IV. The original invention of the main principles of his cartridge was constructed in 1841 and 1842 with paper-rolled case, and some papier-maché, and some metallic bottom, stamped up with rim, forming a cup-anvil chamber, when he was experimenting with his invention in breech-loading firearms in 1841 and 1842. The paper vented itself freely, and in metal the common-size vents were tried, and made larger.

Your petitioner notified the ordnance departments of the navy and army that he had made the said invention in cartridges, and breech-loading firearms, firing by cartridges, instead of a touch-hole, or percussion cap and tube, as early as January 30th, 1843, and

in 1845, 1846, 1847, and petitioned Congress in December, 1845, to make provision for their introduction and adoption into the public service. But at that early day, and until 1864, the United States ordnance office resisted all efforts to change the system of infantry muzzle-loading arms into breech-loading with primed cartridges, and only tried a few carbines with rim-fire cartridges in 1864.

V. In 1864 the new chief of ordnance, General Dyer, requested your petitioner to develop his invention of cartridges and breech-loading firearms for infantry in place of the Springfield muzzle-loading musket, of which inventions your petitioner had informed him, and was with said General Dyer at Fortress Monroe in 1858, and 1859, making trials of concussion fuses and shells, where he was then in command.

Your petitioner prepared his cartridges and applied for his patent, and his firearms, several in number and plan, in compliance with this request, and said chief of ordnance himself fired, and expressed his preference for the centre-fire cartridge, and the model of gun patented subsequently, in 1867, to your petitioner—a modification of his patent gun of 1844, adapted to fire his said cartridge for infantry service.

Your petitioner was the first and original inventor and patentee of the swinging breech-block gun, secured by the hammer, patented to him in 1844, reissued in 1851, of which principle the present Springfield rifle of defendant is a modification, using your petitioner's patent cartridge, and principle of firing by an indenting, pointed, central striker compressing the base of the cartridge and the fulminate by central indentation of a fire-tight base.

VI. In or about the month of June, A. D. 1865, your petitioner informed, in person, Col. Stephen V. Benet, at the Frankford arsenal, the place where the Government made ammunition, and of which he was then in charge, of this centre-primed cartridge invention of your petitioner, for which he had applied for a patent, claiming for it its superiority over the rim-primed cartridges then being made there for carbines. No centre-fire, fire-tight, primed cartridges, with free escapement ventage, had been made there,

3 and there were no guns there adapted to their use. The "Maynard" and "Burnside" centre-fire tried there were not primed, nor fire-tight, and the "Morse" was not fire-tight, free escapement, nor with head or bottom solid to the case; it was only a cap on the tige in an india-rubber wad, was fired by a plunger and percussion, and not a pointed, indenting striker, by compression; and no order was given at Washington with leave to try centre-primed cartridges until October, 1866, at the Frankford arsenal.

Claimant's invention was not only the first in time, but, as perfected, was fire-tight, and fired by a pointed, indenting striker; was constructed with a head and cylinder united by a flange, made solid, and combined with a separately made primer, with a fulminate chamber circular, to fit and hold by overlap of metal, with large or free escapement ventage to the base of the charge; some with one and some with two or more vents, leaving the metal solid immediately opposite the centre, or the bar, opposite the line of motion of

the striker ; comprised all modifications, including that now patented, and employed since the issue of the patent to claimant, by the defendant, and with the same free escapement ventage from the priming to the base of the charge of powder, by the same construction of anvil plate, dual vents, and bar, or metal left solid immediately opposite the centre, and solid flanged head and case, to hold secure the primer and charge under the indenting blow of the striker and of the explosion, and to allow of a safe extraction of the shell after the firing. And claimant applied for such patent April 13th, 1865.

Your petitioner prosecuted said original application of April 13th, 1865, with all the modifications of his invention, through a second examination and through an appeal, without avail. He failed to make the examiners comprehend the principle of the same ; and he continuously and repeatedly, to the utmost of his ability, in extreme ill health and resultant poverty, renewed his said application for a patent in 1872, 1874, 1878, and frequently, under the rules and regulations of the Patent Office, allowing only a limited number of examinations, only two, under each fee of \$15 paid into the Treasury, and by special order of the Commissioner of Patents, on due cause shown ; in every file exhausting his limited right of examination under the rules, until new and more experienced examiners finally, in 1878, then for the first time understood the invention, and the application was finally allowed, after due examination, and the patent forthwith issued to this petitioner, he having admitted of no delay in paying the final fee of \$20, after the allowance of the application.

And your petitioner shows that he used all practicable diligence, and incurred great expense, as provided by law, in his numerous renewals of his application, in procuring his said patent, amounting in all to \$130, in fees alone, paid into the Patent Office or Treasury.

4 And your petitioner avers unto your honors that from the year 1857, in April, when he, in Washington, contracted the arseniated poison called the "National Hotel disease," until 1880, he not only suffered ill health, and continual sickness and consequent poverty, but the United States also, in suit No. 2124, used its whole force, and money resources freely, to defeat him in said suit, to his great expense and loss, and consumption of his time, until December, 1871, when it was settled. That in the following month, at once, he renewed his application for the patent for his cartridge, and exhausted his right of examination, making a division on an allowed portion—on a division as to the front or ball end of the cartridge, separately patentable, "without prejudice" as to the right to a separate patent for the priming principle. And again forthwith, in 1872, he renewed his application for the priming principle involved in this suit, on which he also exhausted his right of examination ; and for good cause the Commissioner of Patents ordered a renewal of the examination, which was also exhausted, without the examiners comprehending the invention. In 1878 he again renewed it, in an application for a reissue of the division patent of

1872 allowed, which was disallowed, because this patent did not describe this part of the original application as it was divided and allowed. He then renewed the application the fifth time on a new fee, whereupon a new set of examiners, who had fully educated themselves, by compiling a history of the cartridges of all countries, as patented, comprehended and understood the invention of your petitioner, and allowed the patent therefor. And your petitioner never abandoned his invention of a fire-tight, central-fire, and primed, metallic cartridge, with free escapement ventage to the base of the charge of powder, nor any of the modified constructions described in his original application of 1865, to carry the principle into effect, nor any of his applications of renewal in support or continuance of the said original application; but he used all possible diligence to obtain his patent therefor and to introduce his invention of firearms and cartridges into use for infantry service, as requested and permitted.

Prior to the issue of the patent, and pending the application therefor, your petitioner also filed a specimen of his invention with the chief of ordnance of the United States, by delivery to General Stephen V. Benet, in charge at the ordnance office, of which a record remains in the ordnance official archives, to wit: on or about the 31st May, 1872, recorded as your petitioner's invention "of a metallic cartridge;" also a "specimen bullet." And on July 13th, 1872, your petitioner applied to the chief of ordnance, General Dyer, to have this claimant's "improved ammunition" tested, and on July 15th, 1872, an order was issued by S. V. Benet, major of ordnance, to the commanding officer of the Frankford arsenal, to "test Mr. Hubbell's cartridge, manufacturing a number sufficient for the purpose."

5 There never was any pretence that the cartridge was not your petitioner's invention; on the contrary, it was received, recorded, and officially declared to be your petitioner's "invention of a metallic cartridge," as well as of a "specimen bullet," left for file.

VII. It was an important part of the practical application of said invention, as perfected by your petitioner, that when the enclosing case was made of metal instead of paper, that the anvil plate to enclose the fulminate should also be made of the same or kindred metal, either copper or copper alloy, avoiding tin or other decomposable metal or material which might develop a voltaic action and destroy the priming and charge; all of which advantages were contained in the original invention, and application, and specimens filed of your petitioner. The invention of your petitioner, as patented and filed, and as originally applied for on April 13th, 1865, and prior to that time, was in all respects a perfected, practical invention, and the patent as issued is a division of the original application of 1865.

VIII. Pending your petitioner's application, the officers of the United States experimented on various devices, with tin and other metals, for cartridges of cheaper and different construction and operation, in pursuance of orders received October 5th, 1866; all of which finally failed and were abandoned by the defendant; and

after the issue of your petitioner's patent, his invention, constructed, combined, and operating substantially as claimed in his patent, was permanently and extensively adopted in the public service of the United States, and issued to the militia of the several States, in pursuance of acts of Congress relating to breech-loading firearms and cartridges or ammunition; the said cartridges of your petitioner's invention and patent being made at the Frankford arsenal, of and by the duly authorized officers and employees of the United States; that called the reloading cartridge not until about October, A. D. 1879, and the "cup" cartridge, with solid flange case, shortly before the latter.

IX. Your petitioner was both at Fortress Monroe, with General Dyer, in 1858 and 1859, in relation to your petitioner's inventions being tried, especially concussion fuses, before he became chief of ordnance, and was also at the Frankford arsenal in 1858 and 1859, and informed Mr. Perkins, the foreman, about his centre-fire cartridge of 1842, as improved, the permits for your petitioner being then issued by Colonel Craig, then the chief of ordnance; and he made fuses also at these times at said arsenal, and fired them at Fortress Monroe.

Your petitioner also instructed Captain Prince, in charge of experiments at the Frankford arsenal, in all the details of making his cartridge, in July, 1872, in pursuance of orders as to claimant's "ammunition" issued by said General Dyer, as chief of
6 ordnance, and Stephen B. Benet, major of ordnance, all being the proper and duly authorized officers. The chief of ordnance, General Dyer, had previously, in person, at his office in Winder's building, been more fully informed of claimant's invention of centre-fire cartridges, and his firearms to use the same—four in number, the most complete gun being that patented in May, 1867, by claimant, and fired frequently by the said chief of ordnance in person, in the adjacent ground near his office, in 1866 and 1867.

X. When the said letters patent were granted and issued for the cartridge in 1879, your petitioner exhibited the same and gave information thereof to the chief of ordnance of the United States, and fixed the just compensation or royalty rate at two dollars per thousand for each and every thousand of the ammunition or cartridges that might be made or used during the term of said patent containing your petitioner's patented invention.

XI. And the duly authorized officers of the United States, well knowing of your petitioner's said patent, and of said royalty charge, which was not disputed as to justness of amount, your petitioner having assented to a reduction from two and a half, which he first asked, to two dollars per thousand, at the suggestion or request of Major S. C. Lyford, of the ordnance office, did enter largely into the manufacture of cartridges containing the construction, combination, and principle of operation of your petitioner's patented invention, and manufactured and used his said patent cartridge to the number of many millions, and still continue to manufacture and use the said patented invention of your petitioner called the "reloading

cartridge," and others, in accordance with said patent; whereby the Government of the United States, by the duly authorized and proper officers thereof, promised and agreed to pay to your petitioner a just compensation for the said manufacture and use of his said patented invention of cartridge, to wit: the sum of two dollars per thousand; and on due application to the War Department, suggested to your petitioner to make petition to the court, alleging that such was now the practice in relation to patented inventions used by the Government.

And your petitioner further avers, that the duly authorized officers and employees of the United States, under all the aforesaid circumstances, well knowing that the said invention of a centre-fire cartridge, and as improved, was your petitioner's, and that he had been endeavoring to secure his rights by grant of letters patent, and that he finally had obtained letters patent, dated and issued February 18th, 1879, vesting in him the exclusive right to make, use, and vend to others to use, the invention patented for seventeen years, thereafter, and within the time of said grant, did extensively manufacture, on behalf of the United States, the complete,
7 perfected invention of your petitioner patented by him as aforesaid, whereby the Government of the United States did promise and agree to pay to your petitioner a just compensation therefor, as provided by the Constitution and the acts of Congress in pursuance thereof.

And your petitioner further avers, that the duly authorized officers and employees of the United States, after the grant of said patent by the duly authorized officers of the United States, did extensively manufacture and use the said patent-cartridge invention for and on behalf of the United States, whereby the defendant did promise and agree to pay to your petitioner a just compensation for the use of his patent, or therefor, in compliance with the Constitution and the laws in pursuance thereof.

The said manufacture under your petitioner's patent was with the assent of your petitioner for the just compensation stated to be paid by the United States.

XII. Your petitioner has pending a suit for compensation up to March 31st, 1883, case No. 13793, in the Court of Claims, and has never sued any officer nor brought any other suit than that before this present petition. In the said suit the court fixed five per centum of the cost of the finished completed cartridges as a proper compensation, under petitioner's patent, and this rate he accepted and adheres to in the present petition, which is at the rate of \$1.50 per thousand cartridges, costing \$30 a thousand, as officially reported to the court, and \$1.30 per thousand for those costing \$26 per thousand.

XIII. Wherefore, your petitioner charges and claims that the United States on this implied contract is indebted to your petitioner at the rate of one dollar and fifty cents per thousand for each and every thousand of his said patented invention made or used by the duly authorized officers and employees of the United States for the public service, as prescribed by law, since the thirty-first day of

March, eighteen hundred and eighty-three (March 31st, 1883), and up to the last day of the last month preceding the filing of this petition, to wit, May 31st, 1888.

XIV. Your petitioner shows, that the defendant, between April 1st, 1883, and October 31st, 1884, manufactured 9,342,275 primers for reloading, containing the circular fulminate carrier surmounted by the circular anvil plate, with dual vents and central bar to the anvil plate, for use in reloading the solid flange cases in the bottom thereof, and with free escapement ventage, substantially in accordance with claimant's said patent.

Also, that the defendant, between April 1st, 1883, and October 31, 1884, manufactured 12,696,936 "reloading" cartridges, containing the circular fulminate carrier surmounted by the circular anvil plate, with dual vents and central bar to the anvil plate, in the solid flange cases in the bottom thereof, and with free escape-
8 ment ventage from the inner or fulminate chamber to the

base of the powder charge in the outer chamber, substantially in accordance with claimant's said patent.

Also, defendant made from April 1, 1883, to October 31st, 1884, the number of 64,560 "cup" anvil cartridges, so called from a little rim around the edge of the plate, containing the modification stated in said patent, making in all 22,103,771 cartridges.

That since October 31, 1884, the defendant has made many millions of claimant's patented cartridges, estimated at about one million per month. Your petitioner alleges that the defendant has made about 50,000,000 more of his patent cartridges since the 31st of October, 1884.

XV. Your petitioner prays for an account of the full and entire number of the said cartridges made or used by the defendant, its officers or employees in its service, or for distribution to the States, since the said March 31, 1883, to be separately stated when ordered, and for leave to make the same a part of this petition when precisely ascertained, by amendment.

XVI. Your petitioner claims a just compensation for the making or use by the defendant, its authorized officers or employees, for its service, of his said patented invention of cartridge, to wit: He claims the sum of one hundred and ten thousand dollars due to him on this behalf by the United States from the 31st March, 1883, up to May 31st, 1888.

And he prays for judgment for all making or use of his said patented invention from the said 31st March, 1883, to said 31st May, 1888, by the defendant, its authorized officers or employees in its service, or on its behalf, in pursuance of law, in the sum of one hundred and ten thousand dollars, with leave to amend his petition in this behalf when the precise numbers have been duly reported by the proper departments of the United States.

XVII. And your petitioner has always borne true and faithful allegiance to the Government of the United States, and he has not in any way voluntarily aided, abetted, or given encouragement to rebellion against the said Government.

WM. WHEELER HUBBELL.

COUNTY OF CAMPBELL, } ss:
 State of Virginia, }

I, Thomas L. Arrington, a notary public in and for the county and State aforesaid, duly authorized to administer oaths, do certify, that William Wheeler Hubbell, personally known to me, appeared before me this day, and being duly sworn, deposes and says, that no assignment or transfer of his aforesaid claim, or any part thereof or any interest therein, has been made, and that he, said claimant, is justly entitled to the amount therein claimed from the United States, after allowing all just credits and offsets, and that he believes the facts as stated in said petition are true.

WM. WHEELER HUBBELL.

Sworn and subscribed to before me this the fifth day of June, A. D. 1888.

[SEAL.]

THO. L. ARRINGTON, N. P.

(Endorsed:) Court of Claims. No. 16261. William Wheeler Hubbell against The United States. Manuscript petition (cartridge case). The clerk will please file this petition. Wm. Wheeler Hubbell, claimant, Concord Depot P. O., Campbell Co., Virginia. Filed June 11th, 1888. J. R.

Court of Claims.

WILLIAM WHEELER HUBBELL }
against } No. 16261.
 THE UNITED STATES. }

Amendment of Petition.

The Secretary of War having made answer to the request of the court in this case as to the numbers of "reloading cartridges" made, the petitioner, in accordance therewith, and the reservation in his original petition on this behalf, amends his petition as follows, and avers that the duly authorized officers and employees of the United States have, from the 31st of March, 1883, to the 31st of May, 1888, made of said "reloading cartridges" in accordance with your petitioner's said patent, and embracing the invention thereof, the number of 39,224,315 completed cartridges. And also between said dates have made primers for reloading and reconstructing the combination and organization for which said patent is granted and embracing the invention thereof the number of 65,841,675, constituting that number of cartridges, making a total number of 105,065,990 cartridges of your petitioner's said patent of February 18, 1879, and a royalty value of one hundred and fifty-seven thousand five hundred and ninety-eight dollars and ninety-eight cents, (\$157,598.98,) for which sum your petitioner prays judgment in this suit.

WM. WHEELER HUBBELL.

10 STATE OF VIRGINIA, } ss:
Campbell County, }

Sworn to and subscribed by Wm. W. Hubbell, before me, a notary public, undersigned, this 12th day of Sept., A. D. 1888.

THO. L. ARRINGTON, N. P.

Claimant's counsel: J. W. Douglass, C. S. Whitman, Washington, D. C.

Allowed:

WM. A. RICHARDSON, *Ch. Justice.*

Filed Sept. 15, 1888.

J. R.



IN THE COURT OF CLAIMS OF THE UNITED STATES.

Wm. Wheeler Hubbell

December Term, A. D. 1888.

vs.

No. 16261.

THE UNITED STATES.

And now comes the ATTORNEY GENERAL, on behalf of the United States, and answering the petition of the claimant herein, denies each and every allegation therein contained; and asks judgment that the petition be dismissed.

And as to so much of the said petition as avers that the said claimant *has* at all times borne true faith and allegiance to the Government of the United States, and has not in any way voluntarily aided, abetted, or given encouragement to rebellion against the said Government, the ATTORNEY GENERAL, in pursuance of the statute in such case provided, denies the said allegations, and asks judgment accordingly.

Robert A. Howard

Assistant Attorney General.

No. _____

vs.

THE UNITED STATES.

GENERAL TRAVERSE.

Assistant Attorney General.

WILLIAM WHEELER HUBBELL v. THE UNITED STATES.

FINDINGS OF FACT.

This case having been heard by the Court of Claims, the court, upon the evidence, find the facts to be as follows:

The facts in this case are the facts already found in case No. 13793 between the same parties as to the same subject-matter, except as to the time since the beginning of the other action, during which time, to wit, from the beginning of the other action to the beginning of this action, the Government manufactured cartridges of the same form and kind as those described in these findings, known as the "reloading" cartridge, in which said case No. 13793 the following proceedings were had and the following facts were found, which facts are now found herein and are hereto annexed, as follows, to and including Finding VIII:

I.

April 13, 1865, the claimant filed in the caveat archives of the Patent Office of the United States a specification and drawings alleged by him to describe "a gun to load and fire with great rapidity and effect." This caveat was prepared the 8th day of February, 1842. The gun described in the caveat was a breech-loading revolving gun, requiring the use of cartridges. The claim was for the invention of the gun, and also "the cartridge as set forth, and firing it by means of a drill." In this cartridge a paper cylinder was employed in which the powder was inclosed with the ball above or before it; in the back or lower part of the cylinder was a chamber coated with varnish, filled with fulminate, and having an end covering to it; the cartridge was to be fired by a drill. No method of communication from the fulminate to the powder was provided, nor any mention made of an anvil.

II.

The same day, April 13, 1865, claimant also filed in the United States Patent Office an application for letters patent upon what he described as a new and useful improvement in primed cartridges.

May 15, 1865, the letters patent were refused on the ground that the claim had been anticipated.

The application was then amended, and again refused, August 10, 1865, for lack of novelty.

The claimant appealed from this decision to the board of appeal or examiner in chief, and on November 17, 1865, two examiners in chief affirmed the decision, refusing the application.

The important parts of the invention as described in the specifications and the drawings annexed to them, filed April 13, 1865, with application, are as follows:

The invention is called a "new and useful improvement in primed cartridges."

The nature of the invention consists in taking the ordinary copper-flanged primed-cartridge case, which has a projecting flange on the rear and immediately outside of a level rear base or plate and outside of a cylindrical body, such flange connecting the cylindrical body with such rear base plate, and adapted to arms having a flange recess at the rear of the charging chamber. And I dispense with the fulminate in such rim, and I compress and make thinner the center of the rear base plate to about half the surrounding thickness, and for a diameter or size of about a quarter of an inch, and inside of the shell or plate, forming thereby a circular recess or chamber in the base or plate inside to hold fulminate and to present a thin striking face to a striker located in the rear of the shell or cartridge, and I insert inside of this shell, with its rim or edge extending into the rim of the shell, and firmly secured by such rim, a copper plate or anvil, perforated with one or more small vent holes in the anvil part opposite such thin or reduced center to inclose the fulminate, receive the blow of the striker as an anvil as it strikes onto the thin or reduced central part of the rear plate or base of the shell, and drives it forward where struck with the fulminate against the curved base of the center concave of the plate which surrounds a central hole or vent in it to form a base of resistance to explode it against, and to admit the fire directly forward through the center of the gunpowder of the cartridge. This is the best form of applying the invention, though two or more small holes to vent may be used, with the metal of the plate solid immediately opposite the center.

The advantages of this cartridge were described by the claimant in the said specifications, as follows:

The flange being filled up solid prevents it from stripping in extracting the shell. The fulminate being in the center (and not within the outer flange), makes it safer from accidental explosion. The concave plate secured by the outer rim, and is held by the groove in the gun, makes a firm base of resistance to the action of the striker to explode the fulminate. The central issue of the fire forward through the gunpowder ignites it uniformly and most quickly.

The applicant's claim was thus made:

What I claim as my invention is: Dispensing with the fulminate in the hollow rim of the ordinary cartridge case, having its rim projecting around the rear flat base and beyond the cylindrical body of the shell, and then reducing the thickness of this rear plate or base in the center inside, and inclosing the fulminate in and opposite this thinned center or recess by means of a perforated plate or anvil, held securely by its rim entering the hollow flange outside of the cylinder of the shell, to convert it into a center primed cartridge adapted to arms with a flange recess around the rear end of the charging chamber, such as those in which the shell was before used, or others similar, or adapting the striker to it, substantially as described.

In his appeal from the decision of the primary examiner the claimant alleged the following essential features which must necessarily all exist to develop the function of a proper explosion of the cartridge, namely:

1. A thinned central rear sufficiently and only large enough to present an annular striking face around the center hole of the anvil plate and opposite the central face of the anvil plate.

2. An anvil plate held by the surrounding projecting flange and flat with the rear plate up to the edge of the thinned part of such plate, and with a curved concave opposite the thinned part, and only opposite the thinned part, surrounding a central vent hole extending forward through the plate.

The construction of the anvil plate is peculiar and the construction of the thinned rear base is peculiar; both may have been separately known before, but they were never proportioned to each other and brought together to act in unison for the common purpose of producing a quick and certain ignition of cartridge and making it safe to carry; by combining an easy yielding rear face with a solid resisting anvil face properly presented and supported, and a small amount of fulminate with large ventage so as not to blow out or displace the anvil plate, and keep the base solid for easy extraction of the shell.

The claimant, upon January 23, 1872, filed in the United States Patent Office an application for letters patent upon improved breech-loading metallic cartridges. After refusal and amendment, letters patent were issued to him for the invention claimed by him in the following form:

I claim as my invention the within-described improved fixed ammunition for breech-loading infantry arms, consisting of an enlarged metallic case containing a charge of powder, an elongated, solid, and flat-based paper carrier fitting closely within said case, and carrying a smooth, solid, elongated, rearwardly tapering, flat-based, subcaliber leaden bullet, held and partially inclosed by the front end of the said carrier.

On this application a patent was issued for a subcaliber bullet with bullet paper carrier.

The claimant filed, April 25, 1872, in the United States Patent Office an application for a patent for "an improvement in the construction of primed metallic ammunition for breech-loading firearms. This application was amended and refused. The specification as amended was as follows:

I, ———, have invented an improvement in the construction of primed metallic ammunition for breech-loading firearms, of which the following is a specification:

My invention relates to the construction of the base or rear end of the cartridge or metallic case, immediately adjacent to the rear of the powder chamber, to prevent the fulminate and powder, either or both, from decomposition by galvanic action or sweating, and to prevent the paper disk from burning, and prevent the metallic case at the flange from bursting; and to construct the cartridges with uniform similarity, and cheaper than heretofore, by means of a circular centrally-perforated paper disk, carrying the fulminate in its central perforation and secured between a circular metal plate similar in galvanic nature to the metal of the case, with an anvil or bridge piece in this circular metal plate over the fulminate, and one or two holes punched through it at one or both sides of the anvil face to admit the fire to the powder, and secured firm down on the paper disk by the pinched-in sides of the case over the middle plate to insure resistance to the fulminate.

Referring to drawings annexed to it, the specification proceeds to describe a metal case, to contain the powder charge, and the bullet or shot, or only the powder if desired. A circular paper disk about one-tenth of an inch thick fits tightly inside of the metal case against the metal base of the case, this paper disk to be perforated entirely through at its center, forming a chamber of uniform diameter open at both sides alike, and of about one-eighth of an inch in diameter. Into this chamber is put the fulminate when damp, coated on both sides with a solution of shellac, and then placed into the case. Over this is placed a circular plate of the same kind of metal as the case or similar in galvanic nature, so as to prevent galvanic action or decomposition. Two holes through which the fire from the fulminate reaches the powder are punched through this plate, leaving an anvil piece over the fulminate. The specification then proceeds:

Owing to this construction of a paper disk, between a metal plate and the base of the case, a much thinner body of paper, and a shorter metal case, suffices to secure, preserve, and explode the fulminate than is used when paper alone is employed in the metal base or case. There is also greater certainty of exploding the fulminate, and the paper is pressed more mechanically and tightly at the edges against the case, to exclude the gas and fire, and prevent the paper from burning and the shell case from bursting, while galvanic action and decomposition are also prevented; and sweating does not destroy the fulminate. The paper disk being perforated clear through, enables either side to be put next to the metal base and makes equally sure fire. Paper is the only material that will answer for this disk.

I am aware that a body of paper with a concave recess in the rear, containing fulminate, and sufficiently thick to enable the paper in a measure to resist the blow to explode the fulminate, has been suggested before this invention of mine, but it

requires a longer case than mine, and is not so certain to explode; and a paper disk alone so thin as mine, and taking up so little space, will not give sufficient resistance, nor will any paper disk when perforated through like mine, so as to apply either side next to the base, explode the fulminate without the metal plate or anvil. I am also aware that an anvil plate over a combustible-primed wad has also been suggested, but this does not exclude the gas from beneath the plate at the edges or weak parts of the case, which my invention does accomplish.

But what I claim is—

The construction of an improved breech-loading metallic-primed cartridge case, consisting of circular metallic anvil perforated and secured by a bite of the case of the same metal, immediately in front of a circular paper disk centrally perforated through and carrying the fulminate in the central perforation, and tightly inclosed against the sides of the case at the flange, and between the metallic base and anvil plate, exclusively of the same metal, to avoid sweating, bursting, galvanic action, and to keep and present the fulminate and charge in the most serviceable manner, as described.

IV.

Another application, filed December 28, 1878, resulted in the issue to the claimant of letters patent No. 212313, for an alleged new and useful improvement in cartridges. These letters were issued February 18, 1879. The right and title to them remains in the claimant. The amended specification upon which the letters were issued contains the following description of the invention:

United States Patent Office. William W. Hubbell, of Washington, District of Columbia. Improvement in cartridges. Specification forming part of letters patent No. 212313, dated February 18, 1879. Application filed December 28, 1878.

To all whom it may concern:

Be it known that I, William Wheeler Hubbell, of Washington and District of Columbia, have invented an improved metallic cartridge, and I do hereby declare that the following is a full, clear, and exact description thereof:

My invention relates to the peculiar construction of a circular metallic perforated plate, with the circular fulminate carrier and solid fire-tight metallic case and head in one piece, as will be hereinafter more fully set forth and described.

Referring to drawings annexed to it the specifications proceed to describe the cartridge substantially as follows:

A cylindrical metallic cartridge case or shell, with solid rear end in one piece therewith, both fire tight; open only at the front end; to be primed and loaded at this front opening. Above and upon this solid rear end is placed a circular disk of paper, or any suitable substance, perforated through the center for the reception of the fulminate in this perforation or chamber. Above and upon this disk is placed a circular metallic plate closely fitting inside the case or shell; this plate is held in place by contracting or pinching the case or shell, which forces the plate down upon the disk and makes a tight joint around the edge of the plate. The plate has two perforations, one on each side of a center line drawn through its axis, sufficient space being left between the perforations to form the bar, which is of a breadth nearly equal to the perforation in the paper disk immediately over which it rests; above this metal plate is the powder chamber, and above that the bullet. The specification further sets forth that the paper disk may be dispensed with by recessing or forming the fulminate chamber in the metal of the circular plate with a central anvil bar over the recess and a perforation on each side of the bar. The specification thus concludes:

The central anvil affords a firm resistance to a central striker acting on the center of the base, and compressing the fulminate to ignite it with certainty. The two side

vents diffuse the fire into the base of the charge of powder, and its instant explosion presses back the circular anvil plate, and prevents it from being blown out in the barrel, the charge being consumed from the base forward without reaction of the fire or waste of the powder.

The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or detonating powder and the powder charge. In this organization the fulminate, although the superior explosive force, is contracted into a diminished or small central chamber and fills it. The flange and head of the metallic case are solid, all in one piece. This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out, but is compelled to diffuse its explosive force, not in a central stream, but in a diffused body into the base of the powder charge. To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate for two purposes. One is to diffuse the fire from this center most thoroughly. The other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker and obtain complete resistance by the anvil bar, and yet have free escapement for the explosive force at once from beneath the anvil plate without any chamber or space for it to expand into under the plate. This insures a certain ignition, security of the anvil plate to keep its position, and a complete combustion of the powder charge from the base forward, as it impels the bullet out of the gun.

Having thus described my invention, what I claim as new and desire to secure by letters patent, is—

In the bottom of a solid metallic flange cartridge case or shell, the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate, provided with two or more openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described.

V.

The officers of the United States Army began in 1864 experiments for the manufacture of center-fire cartridges which led up to the "cup-anvil" cartridge adopted in 1868 and the reloading cartridge. Prior to 1864 metallic, so-called, "rim-fire" cartridges were used; in these cartridges the fulminate was contained in a hollow flange or rim around the base of the cartridge, and it was exploded by a blow from the hammer of the gun upon the exterior edge of this flange or rim. Among other patterns there were made and fired by said officers the following different kinds of center-fire cartridges:

In December, 1864, some ten or fifteen cartridges thus described: Interior, center-primed cartridges; priming (or fulminate) being held in place against the base or rear of the shell by a circular metal disk compressed by the walls of the shell; in the disk were two holes at the extremities of a diameter of the fulminate through which fire from the fulminate was communicated to the black-powder chamber of the shell; the entire area of the holes opened into the fulminate chamber, and the portion of the metal disk between the holes served as an anvil to resist the blow of the hammer or firing pin; between the hammer and the anvil was placed the fulminate.

The fulminate in this cartridge was carried in an exterior bulb or chamber in the rear of the center of the base of the cartridge; this method of loading the fulminate was abandoned.

About the spring of 1865 the said officers manufactured and fired cartridges of the following description:

A center-primed cartridge, the priming of fulminate in a circular depression in the center of the base of the shell held in place by a cir-

cular piece of metal pressed down over it; fire to the powder charge communicated through two holes at the extremities of a diameter of the depression or pocket in the base of the shell, the entire area of these holes opening into the pocket and the portion of the metal between the holes serving as an anvil to resist the blow of the firing pin or hammer.

The Government continued the use of a center fulminate chamber, having above it a disk with central anvil and two vents to the black-powder chamber, until the development, in 1868, of the cup-anvil cartridge, in which a cup was substituted for a single disk or for the combination of two disks. The cup is an improvement upon the disk or disks, in that a disk from its form is apt to be turned or misplaced in insertion, or loosened by blows from the striker, and must be fastened by crimping the walls of the shell near the flange where the walls are thickest; while a cup has from its form greater rigidity as an anvil, its walls prevent it from turning while being inserted in the shell, and admit of its being crimped in place where the walls are thinner. Being in effect a hollow cylinder it occupies less powder space in the shell for equal depth of cup thickness of disk.

VI.

The "cup-anvil" cartridge is one of those alleged to be covered by claimant's patent. It is a center-primed cartridge, metallic case or shell, with a rim around the rear or closed end of the cartridge. The priming or fulminate is contained in a circular pocket in the exterior of the base of a metal cup; that is, into a cartridge shell, and resting upon its base is put a metallic cup with its mouth toward the black-powder chamber; the bottom of this cup projects upward from the circumference toward the center, and the cup is forced down upon the solid base of the cartridge case or shell, and is held there firmly by crimping the walls of the case or shell over the edge of the cup at its open end. A circular pocket appears therefore in the exterior of the base of this cup and in this pocket, and between the cup and the closed end of the cartridge case or shell is placed the priming or fulminate. Fire is communicated from the fulminate to the black powder through two holes in the bottom of the cup at the extremities of a diameter of the said depression or pocket. The whole area of the apertures is over the fulminate chamber free to receive the flame, and their inner edges do not nearly coincide with the outer edge of the fulminate chamber. The portion of the top of the pocket or bottom of the cup between the two holes serves as the anvil to resist the blow of the hammer or firing pin.

This cartridge was adopted by the Government in 1868, and has since been continuously manufactured and used by it.

The "reloading" cartridge is another of those alleged to be covered by claimant's patent. This cartridge is a hollow metallic shell, rimmed around the base with a pocket in the exterior of the center of the base; through the center of the top of this pocket, supposing the cartridge to be stood upon its base or closed end, is pierced a single aperture or hole to carry the fulminate flame to the black-powder chamber. This cartridge contains only the black powder and the bullet. Any one of several different kinds of primers may be used in it; the one used by the United

States and alleged to infringe claimant's rights is a circular metallic cup into which is put the fulminate; above this is fastened a disk or cover having a groove on its upper side, being the diameter of the circle; at each end of this groove a small piece or notch is cut out of it; through the holes thus formed the flame from the fulminate escapes; if this primer is placed in the chamber of the reloading cartridge, with the closed end of the cup outward and the grooved end against the top of the chamber, the flame from the fulminate when exploded would pass through these holes or notches, thence along the groove to the central aperture in the cartridge case or shell, thence to the black-powder chamber through this single aperture. The entire area of each of the holes or notches in the disk is over the fulminate chamber, and the portion of the disk between the holes is the anvil.

VII.

The claimant, in July, 1872, notified the Chief of Ordnance of the United States of his letters patent, issued in April of that year, and asked that the cartridge therein described be tested. March 22, 1879, claimant notified the Secretary of War of his patent, granted February 18, 1879, and asked allowance for royalty on future manufactures of the cartridge thus protected.

From March 1, 1879, to March 31, 1883, the United States manufactured 14,714,082 cup-anvil cartridges, and after February 18, 1879, used 2,700,000 theretofore made.

From February, 1879, to March 31, 1883, the United States manufactured 3,866,352 reloading cartridges, and 9,373,700 of the primers described in Finding VI were manufactured from 1883.

VIII.

The cost of manufacturing the "cup-anvil" cartridge is \$26 per thousand; the cost of manufacturing the reloading cartridge is \$30 per thousand; a fair royalty would be 5 per cent of the cost.

IX.

The following are, in substance, the proceedings had in case No. 13793 between the same parties:

April 19, 1883. Petition filed.

May 18, 1883. Amendment to petition filed by allowance of judge at chambers.

June 4, 1883. Traverse filed.

July 25, 1883. Amendment to petition filed and allowed.

October 2, 1884. Amendment to petition filed and allowed.

December 15, 1884. Amendment to petition allowed.

January 10, 1885. Claimant's requests for facts and brief filed.

April 9, 1885. Additional brief for claimant filed.

April 13, 1885. Defendant's requests for facts and brief filed.

April 16, 1885. Argued and submitted.

April 16, 1885. Claimant's brief of argument filed.

April 20, 1885. Waiver filed by claimant.

June 1, 1885. Davis, J., filed the opinion of the court. Petition dismissed. Findings of fact filed.

August 14, 1885. Motions for new trial, amendment of findings, and for reversal of judgment filed by claimant.

August 21, 1885. Application for appeal filed by claimant.

December 14, 1885. Motion of claimant for new trial overruled, with leave to submit to the consideration of the court Findings II, III, IV, amended in the form requested by claimant in his motion, subject to objection of the defendants to their allowance.

October 8, 1886. Claimant's request for findings of fact filed under order of the court.

March 15, 1887. Requests, etc., of October 8, 1886, ordered to law docket.

April 15, 1889. Motion to amend findings continued.

November 18, 1889. Continued.

November 12, 1891. Motion of claimant to amend order of court filed.

November 16, 1891. Motion of claimant to amend order of court heretofore entered as to the evidence to be used on the trial allowed, subject to objections of defendants on the argument.

CONCLUSION OF LAW.

Upon the foregoing facts the court decide, as conclusion of law, that the petition be dismissed.



At a Court of Claims held in the city of Washington on the 23d day of December, 1895, judgment was ordered to be entered as follows:

The court, on due consideration of the premises, find for the defendants, and do order, adjudge, and decree that the claimant's petition be dismissed.

COURT OF CLAIMS¹⁸⁷⁰21

No. 16261.

WILLIAM WHEELER HUBBELL v. THE UNITED STATES

ORDER.

Motion of claimant for new trial overruled.

On plaintiff's request for further findings of fact, the following additional findings are now filed, and with the findings of the court heretofore filed are made the findings of fact herein. These findings, being in substance not different from those heretofore filed, do not, in the opinion of the court, affect the result heretofore reached herein.

ADDITIONAL FINDINGS OF FACT.

X.

On application filed January 23, 1872, and on a division, a patent was issued for a subcaliber bullet with bullet paper carrier (patent No. 126,058, dated April 23, 1872; specification, claims, and drawings thereof are made part of these findings); the claimant then reserved the right to make further application for priming invention of the cartridge.

XI.

Upon an application filed December 28, 1878, a patent was issued to claimant February 18, 1879; the specifications, claims, and drawings are made part of these findings.

Previous to the fall of 1866 experience in the manufacture of metallic cartridges at the Frankford Arsenal was limited to making a few of the Morse, Burnside, Maynard, and rim-fire cartridges for experimental purposes.

No order was made for the manufacture of center-fire cartridges at the Frankford Arsenal by officers of the United States Army before the fall of 1866.

About fifteen experimental cartridges, which proved failures, were made in 1866. All had hollow-flange cartridge cases.

These experiments were dropped and no more experiments of this kind were made.

Subsequent to these experiments and prior to 1868 an experimental primed metallic cartridge was made and abandoned, as shown on Plate VI, ordnance memorandum No. 14, which is made part of these findings.

Prior to 1868 some of what were known as Martin's bar anvil, as illustrated in ordnance memorandum No. 14, Plate X (made part of these findings), were tried. It had a hollow-flange metallic cartridge case, and was in 1868 abandoned (ordnance memorandum, text, Plate XIII), and was superseded by the cup-anvil cartridge.

After 1868 numerous experiments were made to reenforce the hollow flange to prevent it from bursting, some with single disks, and some with reenforce cups, and some with the cup anvil.

It was found "that the cup anvil, as used in the service, was only an anvil having no value as a reenforce." (Text, ordnance memorandum, Plate XXX, made part hereof.)

XII.

The cup-anvil cartridge was adopted by the Government in 1868, and has since been manufactured and used by it to July, 1871, when it was abandoned and the present reloading cartridge adopted in its stead.

Owing to the juxtaposition, construction, arrangement, and combination of its parts, this cartridge was best adapted to receive with certainty of fire the blows of the striker in the Springfield gun.

The manufacture of the reloading cartridge commenced at the Frankford Arsenal "in the month of July, 1879."

The solid-flange case, with a pocket or recess to reload, was known at the date of plaintiff's patent 212,313.

XIII.

The following exhibits and models are found as facts in the case:

Letters patent, with drawings, specifications, and claim, issued to Jabez H. Gill, numbered 220,472, on October 14, 1879.

Tracing drawing (filed April 13, 1865) to caveat of claimant.

Tracing drawing (filed April 13, 1865) with application of claimant.

Tracing drawing (filed January 17, 1872, No. 126,058) to application of claimant.

Tracing drawing (filed April 25, 1872) to application of claimant.

Tracing drawing (filed December 26, 1878) to patent No. 212,313. (Exhibit No. 1.)

Official drawings: United States Army service cartridge, cup-anvil cartridge, and reloading cartridge.

Ordnance Office official orders to load the reloading cartridge.

Ordnance memorandum No. 14, printed date April 22, 1873.

Printed digest of cartridges for small arms, to Bartlett and Gallatin, date 1878.

MODELS.

Cartridge in box, Ordnance Office, No. 2,598, filed May 31, 1872, by claimant.

Exhibit A, R. L. M. commander, No. 13,793 (Q. 3 Rec., 105).

Exhibit of Government reloading cartridges.

Exhibit of Springfield rifle and army pistol.

Exhibit, claimant's Exhibit 1858 to application of April 13, 1865.

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Copy.

Court of Claims.

WILLIAM WHEELER HUBBELL }
 v. } No. 16261.
 THE UNITED STATES.

Order.

Since the decision of this case, December 23, 1895, both plaintiff and defendants move for additional findings, and upon these motions the following additional findings are filed, which, in the opinion of the court, do not affect the result heretofore reached:

At plaintiff's request.

In finding II the quotation at bottom of page is corrected and should read as follows:

1. A thinned central rear, sufficiently and only large enough to present annular striking face around the center hole of the anvil plate and opposite the central face of the anvil plate.

Finding IV, second paragraph of quotation from plaintiff's patent, after the words "peculiar construction" add the words "and combination."

To finding VII add this:

From 31st March, 1883, to 31st May, 1888, the United States manufactured 39,224,315 reloading cartridges and 65,841,675 primers.

The cup anvil cartridge has been manufactured and used by defendants until 1879, and finding XII is corrected accordingly.

The cup anvil cartridge is not claimed in this action as covered by plaintiff's patent.

In finding XII, second line, strike out 1871 and insert 1879.

At defendants' request.

Amend finding XII, third paragraph, so as to read:

The manufacture of the reloading cartridge with the grooved anvil disk referred to in finding VI commenced at the Frankford arsenal "in the month of July, 1879."

Amend finding XII, last paragraph, so as to read:

The solid flange case, with a pocket or recess to reload, has been made and used by the United States from the year 1872. From that year until the adoption of the grooved anvil disk described in finding VI (for which patent No. 220,472 was granted to Jabez H. Gill

October 14, 1879) various other anvil disks were made and used by the United States in this type of cartridge shell in large quantities, which anvil disks, though differing from the first-mentioned type in some respects, as well as from each other, secured adequate ventage from the fulminate chamber to the aper-

ture above the anvil by means of notches or openings through or at the outer portions of the said disks.

Amend finding XIII by adding the following :

Letters patent No. 53163, Mar. 13, 1866, to A. Moffatt.

78953, June 16, 1868, " R. J. Gatling.

87125, Feb. 23, 1869, " W. Tibbals.

87297, Feb. 26, 1869, " B. S. Roberts.

87735, Mar. 9, 1869, " J. R. Van Vechten.

90607, May 25, 1869, " W. Tibbals.

British letters patent No. 2906, Nov. 11, 1865, to J. Miller.

1658, June 5, 1867, " I. M. Milbank.

1184, Apr. 17, 1869, " E. T. Hughes.

1530, May 18, 1869, " J. H. Johnson.

26 [Endorsed:] Copy. Court of Claims. No. 16261. William Wheeler Hubbell vs. The United States. Order amending findings of fact of the court on motions of claimant and defendants. Filed Apr. 27, 1896. Court of Claims.

FOLDOUT(S) IS/ARE TOO LARGE TO BE FILMED

30

THE UNITED STATES OF AMERICA.

No. 212,313.

To all to whom these presents shall come :

Whereas William W. Hubbell, of Washington, District of Columbia, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in cartridges, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law :

Now, therefore, these letters patent are to grant unto the said William W. Hubbell, his heirs or assigns, for the term of seventeen years from the eighteenth day of February, one thousand eight hundred and seventy-nine, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this eighteenth day of February, in the year of our Lord one
31 thousand eight hundred and seventy-nine, and of the Independence of the United States of America the one hundred and third.

[SEAL.]

A. BELL,
Acting Secretary of the Interior.

Countersigned :

H. E. PAINE,
Commissioner of Patents.

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(2-175.)

WM. WHEELER HUBBELL }
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Filed with the Commissioner.

CLAIMANT'S EXHIBIT 1. E. Forrest, Commissioner.

DEPARTMENT OF THE INTERIOR,

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting :

This is to certify that the annexed is a true copy from the records of this office of the original drawing, filed December 28, 1878, in the matter of the letters patent granted William W. Hubbell February 18, 1879, number 212,313, for improvement in cartridges.

In testimony whereof I, John S. Seymour, Commissioner of Patents, have caused the seal of the Seal Patent Office, United States of America. Patent Office to be affixed this 1st day of August, in the year of our Lord one thousand eight hundred and ninety-four, and of the Independence of the United States the one hundred and nineteenth.

JOHN S. SEYMOUR,
Commissioner.

FOLDOUT(S) IS/ARE TOO LARGE TO BE FILMED

40

In the Court of Claims of the United States.

WILLIAM WHEELER HUBBELL }
vs. } No. 16261.
 THE UNITED STATES. }

From the judgment rendered in the above-entitled cause on 23d day of December, 1895, in favor of defendant, the claimant, on the 20th day of March, 1896, makes application for and gives notice of an appeal to the Supreme Court of the United States.

WM. WHEELER HUBBELL, *Claimant.*

The application is made subject to pending motions and not to supersede them.

WM. WHEELER HUBBELL, *Claimant.*

GEO. S. BOUTWELL,
Attorney of Record.

F. P. DEWEES, *Of Counsel.*

H.

Allowed in vacation July 6, 1896.

WILLIAM A. RICHARDSON,
Chief Justice.

(Endorsed:) Court of Claims. No. 16261. William Wheeler Hubbell *vs.* The United States. Application for an appeal to the Supreme Court of the United States. Filed March 20, 1896. J. R.

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In the Court of Claims.

WILLIAM W. HUBBELL }
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 THE UNITED STATES. }

I, Archibald Hopkins, chief clerk of the Court of Claims, do hereby certify that the foregoing are true transcripts of the pleadings in the above-entitled cause, of the findings of fact by the court and the conclusion of law thereon, of the judgment of the court, order overruling motion for a new trial, & additional findings of fact, & order filing additional findings of fact, plaintiff's patent 126,058, specifications & drawings, plaintiff's letters patent No. 212,313, specifications and drawings as filed, specifications of patent 220,472, drawings, & application for and allowance of appeal.

In testimony whereof I have hereunto set
 Seal Court of Claims. my hand and affixed the seal of said court,
 at Washington, this 13th day of June, 1896.

ARCHIBALD HOPKINS,
Chief Clerk Court of Claims.

Endorsed on cover: Case No. 16,336. Court of Claims. Term No., 198. William Wheeler Hubbell, appellant, *vs.* The United States. Filed July 14th, 1896.

OCTOBER TERM. 1897.

WILLIAM WHEELER HUBBELL, APPELLANT,
vs.
 THE UNITED STATES. } No. 198.

It is hereby stipulated by counsel for the parties to the above-entitled cause that the certified copy hereto attached of defendant's motion to amend findings and the action of the Court of Claims thereon may be added to the record of the case in this court, and may be printed by the clerk and copies sent to counsel.

F. P. DEWEES,
Counsel for Appellant.
J. K. RICHARDS,
Solicitor-General.

WILLIAM WHEELER HUBBELL, }
vs. } No. 16261.
 THE UNITED STATES. }

Now comes the Attorney-General, in behalf of the defendant, and moves this honorable court to amend the findings of fact in this case by adding thereto the following statement:

Counsel for defendant requested the court to find the following additional facts, which are proved by the evidence, but the court has refused to find them :

On December 28, 1878, the claimant filed in the United States Patent Office an application for a patent for an improvement in metallic cartridges, the specification and claims in which were as follows:

"My invention relates to the peculiar construction and combination of a circular metallic perforated plate with the circular fulminate carrier, and solid fire-tight metallic case and head in one piece, as will be hereinafter more fully set forth and described.

“In the accompanying drawing—

"Fig. 1 is a longitudinal section of my improved metallic cartridge.

"Fig. 2 is a plan view of the retaining disc or anvil.

"Fig. 3 is a diametric section of the fulminate carrier plate and anvil" and

"Fig. 4 is a plan view of the fulminate carrier.

"A is a cylindrical metallic cartridge case or shell with solid rear end L, in one piece therewith, and both fire-tight, open only at the front end B, to be primed and loaded at this front opening.

"D is a circular disc of paper or any suitable substance, perforated through the center, for the reception of the fulminate in this perforation or chamber C.

"This paper disc when charged with fulminate is placed against the bottom L, of the metallic case A; E is a circular metallic plate closely fitting inside of the case A, down upon the paper disc D, where it is held in place by contracting or pinching in the case A, which forces the plate E down upon the disc or base of the case and makes a tight joint around the edge of the plate.

"The plate E is provided with perforations *k, k*, upon either side of a central line drawn through its axis as shown at *h, h*, figures 2 and 3, sufficient space being left between these perforations to form the bar *i*, of a breadth nearly equal to the diameter of the perforation C, immediately over which it rests; F is the space in the cartridge which is loaded, as usual, with a charge of powder and bullet of any desired weight and shape. The fulminate chamber C may be recessed or formed in the metal of the circular plate E, with the central bar *i*, and two side perforations *k, k*, over it, dispensing with the paper. The central anvil affords a firm resistance to a central striker acting on the center of the base L, and compressing the fulminate to ignite it with certainty. The two side vents diffuse the fire into the base of the charge of powder, and its instant explosion presses back the circular anvil plate, and prevents it from being blown out in the barrel, the charge being consumed from the base forward without reaction of the fire or waste of the powder.

"Having described my invention, what I claim is—

"1st. The circular plate E, constructed with central solid resisting piece *i*, and two or more side perforations *k, k*, substantially as described, applied within a metal case, with cylinder and rear end solid and tight, thereby requiring the insertion of the plate and charge and priming from the front, igniting the charge and remaining fire tight in firing as described.

"2nd. The circular plate E, constructed as described in combination with the circular disc D, and metal solid fire-tight case A, substantially as shown and described.

"3rd. A circular metallic tight-fitting plate perforated into a central fulminate chamber, leaving a central solid or unperforated bar over the fulminate chamber, within a solid fire-tight metal case, substantially as set forth."

The examiners rejected the first and third claims on reference to patents of A. Moffatt, 53168, Mar. 13, 1866, and W. Tibbals, 90607, May 25, 1869 (cartridges), and English patent 2906 of 1865, and the second claim upon the English patent alone.

Thereupon the claimant amended his specification by adding the following:

"The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or detonating powder and the powder charge.

In this organization the fulminate, although the superior explosive force, is contracted into a diminished or small central chamber and fills it. [Before the application was finally allowed the words "the flange and head of the metallic case are solid, all in one piece" were added here.] This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out, but is compelled to diffuse its explosive force not in a central stream, but in a diffused body into the base of the powder charge. To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate for two purposes, one is to diffuse the fire from this center most thoroughly, the other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker, and obtain complete resistance by the anvil bar, and yet have free escapement for the explosive force, at once from beneath the anvil plate, without any chamber or space for it to expand into under the plate. This assures a certain ignition, security of the anvil plate to keep its position, and a complete combustion of the powder charge, from the base forward, as it impels the bullet out of the gun."

He also substituted in place of the three original claims the following:

"Having thus described my invention, what I claim as new and desire to secure by letters patent is:

"The construction and arrangement of the chamber of fulminate, anvil, plate, perforations, and case, with the central constructed, filled chamber of fulminate powder in contact and between the base of the case and the circular anvil plate, with central anvil bar and two or more side perforations extending from the extreme sides of the chamber of fulminate into the base of the powder charge whereby the smallest area of resistance is presented to the fulminate explosion, and the fire is diffused in the base of the charge of powder and the greatest resistance is presented by the front face of the plate to the powder charge, consuming the powder and securing the plate as and by the means described."

The examiners held that the construction described in the specification as amended involved patentable novelty, and that a specific and well-defined claim might be allowed, but not the amended claim, it being "vague, indefinite, and ambiguous." Therefore the claimant withdrew the amended claim, substituting the following, which was allowed:

"In the bottom of a solid metallic flange cartridge case or shell the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate provided with two or more openings whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described."

The object of this motion is to enable defendant's counsel to bring before the Supreme Court the fact that the court was requested to find the above statements of fact, and refused so to do.

J. E. DODGE,

Assistant Attorney-General.

CHARLES C. BINNEY,

Assistant Attorney in Charge of Case.

The above I believe are correct extracts from the file wrapper and contents in Patent 212313 of record in this case. The relevancy of the same to the issue not admitted.

F. P. DEWEES,
Attorney for Claimant.

Overruled. The file wrapper and contents on an application for a patent do not constitute such facts as the court is required to find under Rule 1 of the Supreme Court relating to appeals from the Court of Claims.

By the court.

W. A. R., *Ch. J.*

MAY 18, 1896.

Thereupon on the 23d day of May, 1896, the above motion to amend findings was renewed by defendant, upon which the court made the following order:

No further action of the court is necessary on this motion. When the transcript of record on appeal is made, the clerk will insert the defendant's motion and the order of the court overruling the same.

I hereby certify that the foregoing is a true copy of the defendant's motion to amend findings with the orders of the court in relation thereto, and which appears of record in the above-entitled cause.

In testimony whereof I have hereunto set my hand and affixed the seal of said court at Washington this twenty-second day of October, A. D. 1897.

[SEAL.]

ARCHIBALD HOPKINS,
Chief Clerk.

○



IN THE
Supreme Court of the United States.

OCTOBER TERM, 1897.

No. 198.

WILLIAM WHEELER HUBBELL, APPELLANT,

vs.

THE UNITED STATES.

BRIEF OF APPELLANT.

This is an appeal from the Court of Claims of case No. 16261, brought in June, 1888, to recover \$157,598.98 on an implied contract or contract for the making or use by the United States of 105,065,990 cartridges of said Hubbell's patent, No. 212,313, dated February 18, 1879, granting or securing to him, his heirs or assigns, the exclusive right to make, use, and vend the said invention of cartridge throughout the United States and territories thereof for seventeen years (p. 27).

Appeal, p. 37 of Record.

Said making was from 31st of March, 1883, to 31st of May, 1888, by the United States (p. 23) at the Frankford arsenal (p. 22, 23).

Errors of Court of Claims.

I.

The Court erred in deciding "as conclusion of law that the petition of claimant be dismissed, in finding for the defendant, and in ordering, adjudging, and decreeing that the claimant's petition be dismissed" (p. 20).

II.

The Court erred in finding IV in its version of the patent, in its legal meaning; also in stating "The specification further sets forth that the paper disk may be dispensed with by recessing or forming a fulminate chamber in the metal of the circular plate with a central anvil bar over the recess and a perforation on each side of the bar" (p. 16).

III.

The Court also errs as to what elements constitute the invention and combination patented, and what are their several and co-operative functions and ultimate results.

IV.

The Court errs in omitting the solid flange uniting the recoil head or bottom of the case with the charge cylinder as an essential device to use the bottom and case in the combination as claimed and patented.

V.

The Court is in error in omitting to recognize as matter of law that the patent is for an organized cartridge charged with fulminate and primed and loaded as usual with a charge of powder and bullet (p. 16, p. 29, par. 1, 2, 3, 9, 11).

VI.

The Court of Claims is in error wholly as to the substance and meaning and subject-matter of the patent, as set forth in its printed opinion (C. C. Reports) filed in case 13793, in saying:

"The patent of 1879 is therefore for a combination made up of the circular base containing the fulminate, the anvil over it, with the apertures or vents placed as shown, and the position of these vents is material to the combination as described and claimed."

VII.

The Court errs in finding VI, where it reiterates the substance of error VI above in calling the case a cartridge and saying "the one (primer) used by the United States is alleged to infringe claimant's rights."

VIII.

The Court is in error throughout, in version, that "claimant's patent is for a combination of only two parts—a fulminate carrier and an anvil, which constitute a primer only"—and irrespective of their construction and adaptation to a solid flange case and bottom, and irrespective of the mechanical condition of a transverse braced, tight jointure in assembling the parts—a function set out specifically in paragraph 6 of the patent.

IX.

The Court errs in failing to notice that the specification does not say "a central anvil bar over the recess and a perforation on each side of the bar" (p. 16), and in failing to notice that the patent says: "The fulminate chamber C

may be recessed or formed in the metal of the circular plate E (par. 6) with the central bar *i* and two side perforations K K *over it* (the fulminate chamber), dispensing with the paper" (as a substance and using recessed metal), the anvil in combination constructed on the principle set forth in paragraph 7, with bar *i* of a breadth *nearly* equal to the diameter of chamber, with two side perforations or openings as claimed in the patent, *over the fulminate*; and extension of cut transversely in the anvil, as shown in the drawing filed, to make "communication" of priming powder of the charge in loading, and fire in discharge, with instant explosion, as specified, essential to certain and accurate shooting, without failures of any kind, and "into" the base of the powder charge; the whole of the "openings" being over the fulminate and the transverse extension in the anvil metal inducts the priming powder from the charge, and the fire from the fulminate, freely communicating between the base of the charge and the fulminate, and the same condition exists in the reloading cartridge as made by defendant, together with the same combination of parts and same functions of operation and same results specified in the patent.

X.

The Court errs in failing to notice that the patent (par. 6) sets out its principle of tight jointure of its parts mechanically established in assembling the three elements—the case, the carrier, and anvil—with the fulminate, and not on any gas-check expansion of parts to become tight, supposititiously by the pressure of gas in firing, and hence erroneously supposes gas-check primers may be legally considered or practically used for military service at first and afterwards finds they failed (XI, XII).

XI.

The Court truly finds as to the reloading cartridge, so called, used by the defendant (finding XII):

"Owing to the juxtaposition, construction, arrangement, and combination of its parts, this cartridge was best adapted to receive, *with certainty of fire*, the blows of the striker in the Springfield gun."

The Court fails to state the parts constituting the patented combination and the functions developed, by which the ultimate result of "certainty of fire" is attained. It fails to state or notice its tight-jointure principle, to insure perfect condition of fulminate and powder charge and prevent reaction of fire both backward and forward in firing.

XII.

On Hubbell's Originality.

The Court errs in its version of the specification filed April 13, 1865, in its opinion and finding II (pp. 13, 14) and the legal interpretation thereof.

The Court filed no separate opinion in case 16261, but filed an opinion in case 13793, with findings of fact still pending open for amendments; appeal entered of record in abeyance, and reiterated the facts and filed amendments in case 16261, which reverse and annul or contradict or correct those filed in 13793. The opinion reported officially errs in law in asserting that the application and invention of 1865 was for a concentration of fire and no bar with two side vents other than a suggestion.

The legal meaning and facts being that the "central fire" mentioned being as distinguished from "rim fire" (p. 14); and "one or more vents" specified (p. 14) *with metal left solid immediately opposite the center* (or bar *i*), for a gun with long

breech block and axial motion of striker, loading in the top of the barrel or recess. (See claim, p. 14.) Hubbell had both guns, and the cartridges adapted for both. Application refiled more complete and improved January 23, 1872; renewed on a division April 25, 1872; special allowance of examination by the Commissioner of Patents 1874; renewal application of perfected invention, December 28, 1878; patent, February 18, 1879 (p. 29). The long breech gun was adopted by act of Congress in June, 1872, and used to experiment with gas check and hollow flange cartridges (Ord. Mem. 14), all failures.

The only known law of gases, explosive and all others, is "diffusion," and not concentration, and hence "diffuse" is correctly expressed in the patent and erroneously by the court (Brande's Encyclopedia, Booth's Chemistry), "a small amount of fulminate with large vantage" (p. 14, Appeal); also "annular striking (anvil) face;" also "central anvil face, of anvil plate," including both one central or two side vents (1865)—so proved by every witness in the case, and finally found by the Court (XIII), Models "Exhibit 1858 to application of April 13, 1865, claimant's," containing the bar *i* and two side vents, with Maynard fulminate primer, and also plate of *annular* anvil with large central vent, the jointure being made with a hollow flange case clasping the anvil rim *longitudinally* and solidly, not the combination with cylinder jointure, patented in its entirety with solid flange case.

The Court erred in failing to grasp the claimant Hubbell's course of progressing invention. "Models" (p. 22) "Cartridge in box, ordnance office No. 2598, filed May 31, 1872, by claimant," filed when patent application was pending with the executive branch of the Government.

XIII.

The Court, admitting Hubbell's originality as early as 1842, February 8, erroneously fails to notice that the Hubbell cartridge and model proved and found (Exhibit A. R., L. M) of February 8, 1842, has both the cup-anvil rim bottom and the pocket or recess in the bottom and flat base for flat-breech gun, with central chamber of fluminate, flat in front for an anvil face in the center of the base of the powder chamber, all similar to the defendant's reloading cartridge, with rim to fasten it like the cup-anvil cartridge (Q. 3, R. 105): "Question 3. Will you look at the specification and drawing of the gun and cartridge now shown you, under oath of Mr. Hubbell, February 8, 1842, marked No. 3, filed June 26, 1883, J. R., and produce a model of the cartridge there described and shown? Answer. Here produce the model. (Model offered in evidence and marked Exhibit A. R., L. M., com'r, Case No. 13793.)

This cartridge had a compressible paper case, to tighten up, forced into the gun chamber by a plunger. It was a machine rapid-fire gun.

The tight-jointure principle of the present metallic case cartridge is by a metallic combination of case and plate or transverse anvil clasping a circular cylinder of paper or of recessed metal for a fulminate carrier.

Hubbell was the first in the world to conceive this germ or idea of tight-jointure central-inclosed fulminate invention with flat breech-loading gun and central pointed striker to use it. The striker of 1842 plunged forward quick with both a forward and rotary motion. In 1865 he used a spring plunging motion of striker. Now used, 1878 to 1897. (F. XIII, Exhibits "April 13, 1865," filed.)

XIV.

The court erred in calling the "fulminate" the priming. It is not the legal version of the patent.

In the nomenclature of the patent, ordinary words well known then (1842 to 1878) have been used.

The "fulminate of mercury" has been called "fulminate" throughout and not called, "priming." It, the fulminate, originates fire. "Priming" conducts the fire only as a fuse does, but quicker, and was the gunpowder which entered the vent in loading or afterwards applied in the vent, and does not originate but cumulatively leads the fire into the charge of gunpowder. The priming also filling the vent prevents it from filling up by oxidation of its metal sides, and fulminate is too powerful for priming.

In loading a cartridge, the fulminate is first applied to the case when empty to prevent accident and be safe. The case is then primed by the descent of the finest of the gunpowder into the vents in loading the charge downward. The charge is filled downward into the case and the bullet set in front. This completes the assembling of all parts. The priming and charge of gunpowder and bullet are old. The patent invention is in the construction and combination of the firing devices with the fulminate and in the center of the bottom of a solid flange case to hold them before and in use and extract them with safety and certainty in all respects after firing, so as to reload and not disable the gun.

XV.

The Court also erred in assuming that the claimant's vents or "openings" were only partly over or beyond the fulminate and the defendant's wholly over the fulminate, and that this as matter of law was a material variation. The "openings" stated in the patent claim of claimant is the actual openings shown on the original drawing filed in the application in the Patent Office (XIII, tracing drawing, filed

December 26, 1878, with application of claimant) showing elliptical-shaped openings at the sides of the bar *i* over the fulminate. The outer curve of the ellipse is formed by the side of the fulminate chamber; hence "nearly coincide" or agree with them. The defendant's openings over the fulminate are exactly the same in shape, location, and make-up. In both is an extension cut or transverse groove radially in the metal of the anvil, connecting with the openings and with the bottom or base of the powder charge, which establish or maintain "communication" between them to freely induct the priming powder to the "openings" or vents, and freely induct the fire from the fulminate chamber "into" the base of the powder charge.

One is cut from the openings outward radially; the other is cut from the openings inward radially; both perform the same office of free "communication" required by the patent to get the best results of the combination of elements or mechanical parts. The patent is not confined to any particular shape of "communication" in front of the anvil. The better form is to bore out layer, the bottom of the recess of the case, and not cut across and weaken the anvil metal to suit a small hole which would otherwise cut off the communication required by the patent, and defeat the action of the cartridge. The anvil is then stronger, and the contraction of the case in front firm and strong. Both forms are embraced by the patent; their functions are identical. The area of the openings over the fulminate and the bar *i* in the original drawing and defendant's make of reloading cartridge with the patent combination are the same. The Court erred as to the patent.

Chi. & N. W. Co. vs. Taylor, U. S. R., 554.

Winans vs. Denmead, 15 How., 330.

Root vs. Ball, 4 McLean, 177.

Alden vs. Dewey, 1 Story, 366.

Parker vs. Haworth, 4 McLean, 370.

Howe vs. Abbott, 2 Story, 190.

Sewell vs. Jones, 91 U. S., 171.

The Hubbell Patent 212,313

and its use and appropriation by the exclusive making of defendant for its military service, including the State militia.

This 212,313, Hubbell, is a patent for an original organized cartridge, with fulminate primer made separate, and solid flange metal case, in the bottom (flat base) of which the combination of the fulminate devices is contained, in combination establishing the principle or function of a cylindrical mechanical transverse braced tight jointure, with a cylindrical recess of the case, whereby in the cartridge tight inclosure is established, with firm inclosure and resistance for the fulminate, and free escape in action, are established in the manufacture or assembling of the case, carrier, and anvil, on metallurgical and mechanical principles of force and resistance, and all humidity, rain, dews, wet, or condensation of vapor are excluded from the fulminate and charge; all chemical action of oxygen and hydrogen excluded; all galvanic action and destructive chemical effect prevented, and an assured, certain, instant ignition and explosion of the cartridge attained; no misfires, no hang-fires, no decomposition resulting; no buckling of carrier, no leakage of fire, no reaction of the fire, no waste of power resulting, but a safe, certain, high-power, instantaneous-acting military cartridge is created as an ultimate result, all complete, with bullet in place, fitted as usual, tight and lubricated in the front end of the case. (See course of invention from 1842, pp. 13, 14, 15, 16, to issue of patent, Feb. 18, 1879.)

The invention in this patent is, as stated by the claim, in concrete form: In the combination of the circular anvil plate, with its two vents or "openings" over the fulminate contained in a circular chamber or carrier made of compressible or tight-fitting substance, paper or thin metal, and with indenting metal center opposite the "anvil bar *i*" of the

anvil plate, holding the carrier to the walls of the case, in the bottom of a solid flange case, the "bar *i*," so called, resulting from the two openings over the fulminate also siding on their distant curve or ellipse, with the side of the fulminate chamber; and which flange of the case holds firm in place in the breech chamber of the gun in firing, and draws out for reloading the gun and case, without bursting and without stripping, all co-operating together, substantially as described, forming a tight-jointure combination of the three main elements—the solid flange case with recoil head or bottom; the circular fulminate carrier; the circular plate faced anvil, with its central bar *i*, inclosing face-resisting face, and two free-acting side "openings" or ventage over the fulminate in its central chamber in the recoil base or bottom of the case; and a channel cut or formed laterally in the anvil metal plate, to induct freely the priming powder of the charge to the openings respectively, and induct the fire freely from the fulminate *into* the base of the powder charge. The patent says (p. 29, par. 9): "This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge;" p. 32, figure 2 of drawing, shows the two actual openings and the transverse cut over the carrier in the anvil plate metal.

The Court below failed entirely to comprehend or state the scope, elements, functions, combination and character or principles of the patent 212,313, and equally failed to see and comprehend or state that the defendant's gill cartridge, or anvil, as he calls it, contains all the elements of the patent 212,313 of claimant, co-operating together, and as expressed and comprised by the claim, and constituting the patented invention of the claimant.

The Gill patent (p. 34) says: "My primer *x* permits the flame to pass in a *short* and *direct* course to the powder," being the same function above stated from the Hubbell patent, and then Gill claims only the cross-cut in the front

of the anvil and not the combination of either the primer or of the cartridge when organized.

The Court also fails to notice that the Gill patent disclaims the substance of the Hubbell patent when it says that he (Gill) "merely" invented the cut across the front of the circular anvil between the openings through it. "Merely," there used, is a word of disclaimer required by the Patent Office in view of the Hubbell prior patent for the combination of the elements of the cartridge, which is best organized with a large central hole or space between the contraction edges, and no cross-cut in the front face of the anvil (see model), as specified, suited to either case.

The cut across is a mere formal shape or extent of cut or space in front of the anvil inner face or body, shown in the Hubbell patent drawing transverse from the actual openings (Fig. 2, p. 32), to maintain the "communication" stated in the Hubbell patent, admit the priming or fine powder of the charge down to the fulminate, and the fire freely forward "into the base of the powder charge" (p. 29, par. 9).

The better form is to bore the opening of the contracted part of the case larger in front of the anvil plate (like the patent) and not cut the thick anvil plate clear across its front.

Any shape of "communication" from the openings or vents suffices to prime and free the fire, provided the inner or inclosing face, bar *i*, circular or cylinder form, with its side openings over the fulminate, and tight-jointure principles, are maintained in the bottom of a solid flange case, as specified, and embodying the maximum of ventage and inclosure and resistance with the least amount of fulminate (one-third to one-half a grain) and greatest certainty of fire, and greatest trajectory power with instant effective action.

The exclusive adoption of the Hubbell combination and principle by the army service for the whole term of the patent proves its superiority.

All gas check and reinforce and hollow flange devices,

and all experiments, were abandoned by the United States on its adoption.

The law of the case or patent is that the patent is not for a combination only of two elements forming a primer, nor for an anvil with a chamber of fulminate in a protrusion of the case.

The patent is for a cartridge organized complete for use in a flat-based breech-loading gun, and comprises, in the functions developed by the combination, the three main firing elements of the cartridge, to wit:

1. The case, with head united to it by a solid flange, for use in a flat breech base gun, to insert, hold, and extract the empty case and deliver the recoil stress on the flat breech base of the gun in firing with certainty and safety.

2. The circular compressible carrier of fulminate, to fit around tight in the bottom of the case to secure certainty of fire and instant action.

3. The circular plate face anvil with its two side openings and central bar *i* over the fulminate, inclosing it securely, resisting it in indentation of striker, holding the carrier in tight jointure with the case around it before action, excluding moisture and chemical change, voltaic effect, and therefore tight and instant in action, mechanically and operatively, and yet venting the fire of the fulminate freely forward into the priming and base of the powder charge within the case, enabling it to burn forward from this base as it impels the bullet out of the gun without reaction of fire and without waste of power. (See patent, p. 29, with the functions and ultimate results expressed, as required by law of 1836 and rules of Patent Office, without prolixity or matter not novel or descriptive.)

Thus these three elements or parts of the combination using the fulminate and powder charge bring into harmonious operation all the mechanical and chemical properties

of the organized cartridge, comprising the case, carrier, anvil, fulminate, powder, bullet, making it a certain, safe, and supremely quick, accurate, and powerful military cartridge, in accord with the declarations of the patent; and the making of this combination of elements is the use of the patent by defendant in its "reloading" cartridge; and this in law, whether it adds any supposed improvement in the form of openings or cut in the anvil metal to maintain the "communication" between the fulminate and powder in front of the anvil, set forth in the patent, for "instant explosion."

Root vs. Ball, 4 McLean, 177.

Alden vs. Dewey, 1 Story, 366.

Parker vs. Haworth, 4 McLean, 370.

Howe vs. Abbott, 2 Story, 190.

Sewell vs. Jones, 91 U. S., 171.

Clough vs. Gilbert & Barker, Mann & Co., 106 U. S., 166.

Cantrell vs. Walleck, 117 U. S., 689.

Rowell vs. Lindsay, 113 U. S., 97.

Union Paper Bag Co. vs. Murphy, 97 U. S., 120.

Goodyear Co. vs. Davis, 102 U. S., 122.

The Gill patent (pp. 33, 34), on which the defendant relies, is "merely" for a groove between the two openings of the anvil, across its front face, to communicate with the base of the powder charge and admit the priming to the openings and the fire freely outward, "by a short and direct course, to the powder" (p. 34). Hubbell's patent says: "The two side vents diffuse the fire into the base of the charge of powder" (p. 29, par. 8 and par. 9). "This chamber, at its sides or outer extreme edges, communicates directly and exclusively with the powder charge."

Both do identically the same; both are identical in substantive structure, purpose, and effect.

Hubbell claims the necessary combination of circular anvil, carrier, and case. Gill's contains, but does not claim, the combination. It is a later subordinate patent and is for a frivolous form of variance in the shape only of a transverse cut in the front of the anvil face, from the openings or vents, comprehended by the Hubbell patent and a direct use of the Hubbell patent. It is one of those colorable forms which any ordinary mechanic could make after the issue and reading of the Hubbell patent; and its perusal at the Frankford arsenal by Major Whittemore in command, who introduced it with Gill as the master mechanic into the service, did not entitle Gill to patent the cross-groove as a modified shape of the "communication" of the Hubbell patent. Such variations of "mere" form are not patentable. (U. S. Supreme Court, *Winans vs. Denmead*, 15 How., 330, and many later cases—U. S. S. C. Rep.)

The Law of the Contract.

The United States Constitution says: "The executive power shall be vested in a President of the United States of America." In accord with this and the law under this, his Secretary of the Interior receives the fee, petition, specification, and drawings forming the application for a patent from the inventor; examines, adjudicates, and grants the patent describing the invention.

The President's Secretary of War has the invention made and used by the United States Army, of which he is also commander-in-chief. Therefore, in law, the executive power knows in these relations what he or it is doing, and is in privity with the inventor in an official capacity; and the invention becoming "private property" by the issue of the patent, the taking of which is forbidden by the Constitution without just compensation, by virtue of the supreme law the facts, unless objected to by the patentee, of taking and

use or adoption and making amount to an implied contract to pay such just compensation, and the law vests jurisdiction in the Court of Claims as an implied contract.

Besides, in this case at bar the inventor and patentee furnished the specification as patented to the Secretary of War with license letter for \$2.50 per thousand on March 22, 1879, after which, on full competitive trial from July, 1879 to 1883, about 13,000,000, and as many cup anvils on trial, the War Department adopted the invention, calling it the "reloading cartridge."

The implied contract is fully established with privity and consent of the patentee, Hubbell. (*James vs. Campbell*, pp. 356, 357, *Otto*, XIV, vol. 104.)

Contract.

The reloading cartridge made by the defendant is officially declared and found by the Court (finding XII, p. 22):

"The manufacture of the reloading cartridge commenced at the Frankford arsenal in the month of July, 1879." "The solid flange case, with a pocket or recess to reload, was known at the date of plaintiff's patent 212,313."

The Gill patent was applied for July 29, 1879; issued October 14, 1879 (p. 34).

The Hubbell patent was last applied for December 28, 1878; issued February 18, 1879; submitted with license, \$2.50 per M, to War Department by Hubbell, March 22, 1879, with letter (p. 19, finding VII; *Rec.*, pp. 74, 75, 76), and referred to Frankford arsenal, Major Whittemore in command, who reported it a practical cartridge, and who commenced there the manufacture of the entire metal form, with the recessed circular plate or "cup," circular carrier of fulminate, circular plate anvil with two openings and bar, and solid flange case, in the month of July, 1879, with Gill as the master mechanic under his command. After a competitive

field-service trial by the army of the cup anvil (or gas-check reinforce) and reloading cartridge, the cup anvil was abandoned and the reloading three-element cartridge, as patented by Hubbell February 18, 1879, exclusively adopted.

The Manner of Use of the Invention.

The case may be used three times.

The firing of a cartridge destroys the combination patented, but the case is capable of being twice used by a new combination of anvil and carrier with fulminate, charge, and bullet, saving some expense in the case.

The Court of Claims has fixed the royalty value at \$1.50 per thousand. The royalty rate of \$1.50 per thousand on the 105,065,990 cartridges amounts to \$157,598.98, and for this amount the claimant has petitioned, and asks judgment of the Supreme Court of the United States in his favor in the said sum of \$157,598.98.

WM. WHEELER HUBBELL,

Appellant, Claimant, and Attorney and Counsellor.

U. S. S. Ct., *May* 20, 1850.

GEO. S. BOUTWELL,

Attorney of Record.

F. P. DEWEES, *Of Counsel.*

IN THE
Supreme Court of the United States.

OCTOBER TERM, 1897.

No. 198.

WILLIAM WHEELER HUBBELL

vs.

THE UNITED STATES.

ADDITIONAL BRIEF OF APPELLANT.

The following errors of the court and exposition of the course of progress and essence of the invention, as finally perfected, specified, and patented and used by the United States, are deemed important:

XVI.

The Court of Claims is in error in finding VI, p. 6, in its alleged description and understanding of the "reloading cartridge" of the Government's manufacture in these words, as well as in the legal nature of appellant's claim of user of his patent 212,313, and of the legal nature of his patent, to wit:

"VI. The 'reloading' cartridge is another of those alleged to be covered by claimant's patent. This cartridge is a hollow,

metallic shell, rimmed around the base, with a pocket in the exterior of the center of the base. Through the center of the top of this pocket, supposing the cartridge to be stood upon its base or closed end, is pierced a single aperture or hole to carry the fulminate flame to the black-powder chamber. This cartridge contains only the black powder and the bullet. Any one of several different kinds of primers may be used in it. The one used by the United States and alleged to infringe claimant's rights is a circular metallic cup, into which is put the fulminate. Above this is fastened a disk or cover having a groove on its upper side, being the diameter of a circle. At each end of this groove a small piece or notch is cut out of it. Through these holes thus formed the flame from the fulminate escapes. If this primer is placed in the chamber of the reloading cartridge, with the closed end of the cup outward and the grooved end against the top of the chamber, the flame from the fulminate, when exploded, would pass through these holes or notches, thence along the groove to the central aperture in the cartridge case or shell, thence to the black-powder chamber through this single aperture. The entire area of each of the holes or notches in the disk is over the fulminate chamber, and the portion of the disk between the holes is the anvil."

XVII.

The court also erred in finding VI, in saying in suit 16261: "*The 'cup-anvil' cartridge is one of those alleged to be covered by claimant's patent.*"

A waiver for want of the combination patented, as it was reported by the War Department, was filed by claimant and his petition amendment allowed by the Chief Justice, confining the suit to the numbers of the reloading cartridge as reported by the War Department. The court corrected this by amendment, p. 23: "*The cup-anvil cartridge is not claimed in this action as covered by plaintiff's patent;*" and XII, "*when (1879) it was abandoned and the present reloading cartridge adopted in its stead.*" (See assignment XI, p. 5 of brief, as to reloading cartridge.)

XVIII.

The court's errors consist in describing and considering that the case or shell with powder and bullet only constitute the cartridge in this suit (error V). Such components as a cartridge are applicable only to the Maynard, the Burnside, the old French Bourcier, and others not carrying fulminate inclosed within the case (in the exhibits), requiring the gun itself or a nipple to carry separately the firing devices. This suit, 16261, is for a fulminate-charged cartridge case organized, carrying fulminate inclosed, powder, and bullet, all to load into the gun at one operation of insertion, with combined inclosed firing and tight-jointure devices—the solution of a complex problem in fire-arms and ammunition.

XIX.

The court also erred in saying the primer (so called) is placed in the "*chamber*" of the case, the powder chamber being the only one specified, the rear recess being termed "a pocket," and the primer could not be fired in the "*chamber*," as specified in the Springfield gun.

XX.

Also in failing to notice that the "fastening" (so called) of the anvil is really the tight-jointure combination with the cylindrical interior surface of the case itself, in its rear recess, pocket, or bottom, set out in the patent as a vital function of paragraph 6 of the specification.

XXI.

Also the court erred in its statement that the shell or case is "rimmed around the base," withholding the fact that it is not a hollow rim or flange and gas-check device to rein-

force, but is a "solid" flange—one of the vital conditions of the claim—to prevent spreading and leakage, stripping, and bursting of the case, and to admit of a safe use of the other elements of the combination as patented and used by the United States since its issue.

XXII.

The court manifestly failed to grasp the legal nature of the specification of invention patented by appellant and used and involved in this suit (16261), and errs as to its being only for "the one primer," not itself an organized cartridge with a mechanical tight-jointure principle, and also errs in the statement that any one (primer) will answer for use, when the Government has tried in field service, condemned, and abandoned the cup anvil and all others, in both single and double recessed cases, and exclusively adopted claimant's patented plate-anvil combination, functions, principles, and invention, as it subsequently substantially finds in the XI and XII amendments and as further amended (p. 23), with official exhibits of Government reloading cartridges and drawings, all official, from the War Department, with legend of structure and official specification of assembling the parts to make up the cartridge. (Finding XIII.)

XXIII.

The court also errs in failing to notice that the "flame" of fulminate is not simply a train vent flame or fire to ignite slowly from grain to grain of powder, as a fuse does, nor from place to place, thence to another place, as its language imports, but its flame or fire is accompanied by a "superior explosive force" (par. 9 of patent), far excelling gunpowder, and that this force carries the flame or fire in a "short and direct course" or "communicates directly," in-

stantly, to the place of least resistance, which, being inclosed with the powder charge, must be the rear part or contracted base of that charge, directly in front of the anvil body, into which its two vents discharge the force and flame or fire unitedly, and in the Government "reloading cartridge" as well as in the Hubbell patent. The contracted metal of the case in front of the anvil plate to hold it firm exists in both, and into this contracted space or base of the powder charge the two anvil vents unitedly discharge their force and flame or fire out of and from the fulminate chamber.

XXIV.

The court also errs in point of law in its conclusion, it seems, that uniting the two streams of flame from the anvil into a "single stream" in front of the anvil into the enlarged part of the powder chamber, or having the anvil two openings "wholly" over the fulminate in claimant's combination of mechanical parts, functions, and principles, escapes the use of his invention patented by letters patent No. 212,313 in a combination used. The objects of the two openings are to leave the metal bar *i* of the anvil in the center, to firmly secure and certainly explode the fulminate against it, and to let its force and fire escape freely and instantly out of the chamber through the two actual side "openings" show in the drawing, Fig. 2 of original, of full size, and area as large as in the Government cartridge and same size of chamber, 18 inches in diameter inside (pars. 7 and 8 of patent, p. 29), and in the claim. The two streams of the anvil come together into one in the contracted open base of the powder chamber or charge *in front of the anvil* in both cases of the Hubbell patent and in the Government reloading cartridge, exploding the charge of powder instantly in a forward direction against the bullet as its line of least resistance, driving it out of the muzzle of the gun; and it also is immaterial whether the color of the powder is "black,"

brown, yellow, or white. All colors exist. The patent specifies "the powder charge," which embraces the *loading charge*, with its usual fine grains to enter and prime its ducts or vents leading to its main body, as common in all muzzle-loading guns for infantry service. The patent specifies the "powder charge" throughout, not a particular shape of "powder chamber." Paragraph 9 says:

"The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or *detonating powder* and the *powder charge*."

Par. 8. "F is the space in the cartridge, which is loaded, as usual, with a '*charge of powder*,' and bullet of any desired weight and shape."

The object of the patent is to develop supreme military power in all the exigencies of exposure and service, and in actual war, if needful, by utilizing the full capabilities of "detonating powder" and the "powder charge" on the principles specified in the patent.

The court below errs entirely as to the legal meaning, scope, and functions and language of the patent.

XXV.

The court also errs in the finding VI in saying, "*and the portion of the disk between the holes is the anvil.*"

The legal meaning of the word "anvil" in this suit, 16261, the patent 212,313, and the War Department's legend of reloading cartridge is that the "anvil" is the circular cover to the fulminate, with its two vents and central bar between the holes, and its circular edge to bear the circular carrier of the fulminate in tight jointure with the inside recess surface of the case, whereby the anvil safely secures the fulminate from impairment, firmly incloses it, and firmly resists the compressing force of the striker, tending

to displace all the fulminate particles, but with greatest intensity on the bar (i) or central part, and there first igniting it.

The anvil plate, in its peculiar construction and combination with the carrier and case, compels the development of all the functions: of tight jointure in assembling and in using the parts; of firm inclosure of the fulminate for use; of firm resistance to the fulminate as it is being compressed by the indentation of the metal base of the fulminate chamber; of thereby causing its instant explosion, the anvil acting always as a transverse, resistant, strong brace, holding its fulminate-carrier in solid, tight, mechanical jointure with the wall of the case—a function vital and set out separately and specifically in paragraph 6 of the patent combination; and, finally, the anvil allowing a free escapement of the explosive force and fire or flame by two side escapes or openings out of the fulminate chamber into the base or contracted rear part of the powder charge, the metal of the anvil between the openings being the “anvil bar” only, the central part of the anvil itself, which is a circular plate or disc anvil, constructed and combined so as to perform all these vital functions of the cartridge by the combination in the Government “reloading cartridge.”

The court evidently failed to comprehend the functional principles of the reloading cartridge as shown by the exhibits of cartridges and official drawings produced with a legend descriptive, and also failed to comprehend the legal meaning and principles of the patent 212,313 for the invention of this appellant.

The “anvil” is fully shown by the War Department in its return, official drawings, page 35 of Transcript, three figures, under the heading “anvil,” and its circular fulminate-carrier under the heading “cup,” three figures (size of scale, 2 to 1), with legend.

THE ESSENCE OF INVENTION OF THE HUBBELL PATENT
212,313.

There are four great vital principles embodied and co-operating in the patent, by virtue of its construction and combination of mechanical parts constituting an organized system of cartridge. They are :

First. A solid, tight jointure of the three metal parts braced and held mechanically tight by force and reaction in assembling the parts and tight during field service and in firing. (Par. 6 of patent.)

Second. The firm inclosure of the fulminate in a central chamber in the circuit of the bottom or head of the metallic case by means of the circular carrier and plate anvil or disk, with its central bar solid (not a suspension in space of fulminate to crumble loosely, as gas-check devices have to expand a cup or case). (Pars. 5, 6, 8, 9 of patent.)

Third. The firm resistance generally of the disk or plate over the fulminate particles by the circular, plate-face anvil and the absolute maximum resistance of the fulminate at the exact mechanical center by the bar *i* of the anvil to the striker's compression of the central base of metal of the fulminate chamber, to ignite the fulminate at this center with "certainty of fire there originated." (Pars. 7 and 8 of patent, explained in 9.)

Fourth. The free-escapement principle of the fulminate force and fire through the openings at the sides or edges through the anvil plate and over the fulminate, proportioned as shown in the drawings, substantially allowing the free, instant escapement of the gas power and fire out of the fulminate chamber into the contracted base of the powder charge in front of the anvil, so that it shall explode forward towards and against the bullet. (Pars. 7, 8, and 9 of patent.)

The premises of the invention or combination of parts are first set out in paragraph 2 with reference to 9th, as to "the solid flange and head in one piece." The subject of the patent is set out in paragraphs 1, 11, and 9 in these words:

Par. 1. "I, William Wheeler Hubbell, have invented an improved metallic cartridge."

Par. 11. "My invention relates to the peculiar construction and combination of a circular metallic perforated plate with the circular fulminate carrier and solid fire-tight metallic case and head in one piece, as will be hereinafter more fully set forth and described."

Par. 9. "The flange and head of the metallic case are solid, all in one piece."

It is the solid flange that unites the head and case, as claimed in the combination, and is vital to its successful use.

THE TIGHT-JOINTURE PRINCIPLE.

Pars. 5 and 6 say: "D is a circular disk of paper or any suitable substance, perforated through the center for the reception of the fulminate in this perforation or chamber C."

"This paper disk, when charged with fulminate, is placed against the bottom L of the metallic case A. E is a circular metallic plate closely fitting inside of the case A, down upon the paper disk D, where it is held in place by contracting or pinching in the case A, which forces the plate E down upon the disk or base of the case and *makes a tight joint around the edge of the plate.*"

(This involves the three elements of the combination claimed with the fulminate.)

The anvil when made of the "metallic plate E" above mentioned. Paragraph 7 says:

"The plate E is provided with perforations *k k* upon either side of a central line drawn through its axis, as shown at *h h*, Figs. 2 and 3, sufficient space being left between these

perforations to form the bar *i*, of a breadth nearly equal to the diameter of the perforation C, immediately over which it rests."

(This gives a circular anvil with metal central solid bar *i* and two side openings over the fulminate and tight fitting inside of the case, really a long recessed cup.)

How to make a *metal fulminate chamber* (or cup) with its anvil bar *i* and two side openings "closely fitting" also inside of its case or cup (par. 8):

"F is the space in the cartridge, which is loaded as usual with a charge of powder and bullet of any desired weight and shape." "The fulminate chamber C may be recessed or formed in the metal of the circular plate E, with the central bar *i* and two side perforations *k k* over it, dispensing with the paper" (substance). "The central anvil affords a *firm resistance* to a central striker acting on the center of the base L and compressing the fulminate to *ignite it with certainty*." "The two side vents diffuse the fire into the *base* of the charge of powder, and its *instant explosion* presses back the circular anvil plate, and prevents it from being blown out in the barrel, the charge being consumed from the base forward without reaction of the fire or waste of the powder."

This change from paper to metal for a carrier or cup enables the process of manufacture to be changed from punching out the chamber to recessing the chamber (pushing it through a die, as long well known), using the metal of the proper diameter—.40 of an inch for a Springfield rifle .45-caliber cartridge, which results in a cup .20 of an inch in diameter outside, .18 inside, and .10 of an inch deep, with anvil plate also closely fitting inside of the case or cup, as previously specified in paragraph 6 in the same combination, to make a tight jointure there, and also in paragraph 2 set out as of Hubbel's specified invention, the only difference in these two modifications of the patent being in the smaller outside diameter of the metal case or cup or fulminate-car-

rier, the inside, .18, being the same in both, and its "retaining disk" or plate anvil "over the fulminate," which it *firmly* incloses, the rear recess in the shell or case being correspondingly smaller in the bottom, as well known, and found for such recess in 1878-'79 and since 1842, but for other and different firing devices, of no comparative practical utility as a military cartridge, and not containing the construction, *mechanical* combination, and *tight-jointure* principle specifically set out in paragraph 6 of Hubbell's patent, nor the *firm* inclosure and *firm resistance, with certainty of fire*, and free *escapement* of the fulminate explosive power from its chamber; all of which, organized together, are the essential vital principles of this patent cartridge, as specified, and making it an "improved metallic cartridge" superior to all others, and hence exclusively adopted by the United States after the patent issued, with full knowledge thereof and consent of the patentee, for a just compensation stated.

"THE DISTINGUISHING FEATURES."

Paragraph 9 uses language specific, and also relative, to distinguish from Patent Office references and older patents. The words "contracted into a diminished or small central chamber and fills it" distinguish from the five-grain fulminate rim-fire cartridges and from Moffat's rim-primed and center-primed combustible wad hollow-flange cartridge patent. The words "so that the 'explosive force' of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out, but is compelled to diffuse its *explosive force*, not in a central stream, but in a diffused body into the base of the powder charge," are to distinguish it from both the Howe patent and Smith & Wesson's (Exhibit American Bartlett and Gallatin), both of which have an air space *under the whole area* of an anvil "diaphragm" or plate, with only a central small vent excluding all powder; both a central stream through the plate or diaphragm; one

(Howe's) a funnel-shaped central air-space vent, an accelerator; neither capable of any central fulminate chamber nor central bar nor two side vents, intended only for pistols; no solid flange, and impractical, of no use whatever, but must blow the anvils out of the muzzles of the pistols. The rules of practice and law of 1836 require this distinguishing language.

The patent combination of principles and devices of Hubbell (this) "assures a *certain ignition*, security of the anvil plate to keep its position, and a complete combustion of the powder charge from the base forward as it impels the bullet out of the gun." Then the claim:

"In the bottom of a solid metallic-flange cartridge case or shell, the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate provided with two or more openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described."

Turning to the specification, we find from paragraph 2 and 6 that this claim embraces the combination of the circular anvil plate with its bar *i* and two side openings over the fulminate, with the circular fulminate-carrier or base tight-fitting, and with the solid flange case braced by the anvil transversely in tight jointure with and against the inside circuit recess surface of the case, in which they are secured in the bottom within reach of a striker to compress the metal center of the fulminate chamber, and its language embraces both the paper-carrier and metal-carrier or cup in the combination.

IDENTITY.

The reloading cartridge of the Government is identically the metallic modification or form of the Hubbell patent construction and combination and principles of tight mechanical jointure braced by the circular anvil holding its

circular fulminate-carrier tight and solid to the case, with a central chamber of fulminate, bar *i*, and two side openings over the fulminate to ignite and conduct its fire to the powder charge in front of the anvil and instantly explode it forward against the bullet. It has every element, function, and principle of the construction and combination patented to Hubbell. Its vital parts, the fulminate chamber, bar *i*, and ventage, are the same in size as the original of the patent, proving it was adopted from the patent.

Hubbell from February 8, 1842, progressively originated, first, the central chamber of fulminate inclosed, the central pointed striker; next, the separate anvil plate, with central bar and two vents, solid flange with indentable center and free escapement, and then the circular, tight-jointure principle instead of a gas check jointure, and finally perfected the proportions of fulminate-chamber diameter to ventage, to be practical for infantry arms, and applied for his patent in December, 1878; granted February 18, 1879.

These perfected proportions, as compared with the Government reloading cartridge, are by instrumental measurements as follows:

These proportions of the vital parts are shown on the drawings he filed as part of his application for the patent on which it was issued and in the exhibits produced by the War Department on call in the case 16261, of reloading cartridges of the Government.

1. The diameter of the fulminate chamber in both is .18 of an inch inside.

2. The outside diameter of the metal fulminate-carrier in both, made as the patent directs, by recessing a metallic circular plate .40 of an inch in diameter, which is the base inside diameter of the Springfield gun's case, for such diameter of fulminate chamber (.18) is .20 of an inch and the depth of cylinder body of case or cup is .10 of an inch all around,

making across the base and sides .40 of an inch, the same as the plate.

3. The circuit of the anvil face proper over the fulminate in both is .18 of an inch diameter, triangulated, equal on three measurements, one each side of the two vents and one midway between them. All three are, in both, as "wide as the fulminate-filled chamber"—.18 of an inch—in which it is tightly fitted in the cup and case, as directed by the patent.

4. The sum of the depth of the anvil in its case with the chamber, in both, is .10 of an inch inside.

5. The solid flange is fully double the thickness of the indentable center of the fulminate chamber to compress the fulminate with a striker and hold it firm and tight without expansion of the head.

6. The minimum width of the bar *i* of the anvil in the cartridges and patent, at its center, is in both .11 of an inch, curving to .18 of an inch at the sides, and with the fulminate-chamber curve forming the outer line of the two actual openings over the fulminate, each side of the bar (Figs. 1, 2, 3 of patent).

7. The ventage of both open and free is .09 of an inch, and each shows a transverse extension cut or groove from the actual opening in the metal of the anvil plate.

8. In both the fulminate explosive force, flame, or fire escapes in a "short" and "direct" course from the fulminate chamber to the powder charge.

The proportions in all vital features and the parts or elements and operation are identical in all seven points of measurement, proving conclusively the adoption of the

reloading cartridge of and from the patent 212,313 as of record in the Patent Office and available to all persons, as well as to the Government, by act of Congress especially.

A comparison with the Gill patent, No. 220,472, referred to in amended finding XII as for a "grooved anvil disk," appears by the claim to be only "as shown" in the drawings.

These drawings have no scale and are literally, "as shown" in Fig. 6, in section. The fulminate-carrier or cup is .30 of an inch in diameter outside and .26 of an inch inside, being .08 of an inch greater than either the Government reloading cartridge or than Hubbell's patent. The squares of their diameters and of fulminate stand:

| | | |
|-----------------------|------------|------|
| Hubbell's patent, | .18 =..... | .324 |
| Government reloading, | .18 =.... | .324 |
| Gill patent, | .26 =..... | .676 |

and over twice as much fulminate and too much for actual use; is too powerful and dangerous; is not used.

In Fig. 5 of the Gill patent the inside diameter is .50 of an inch, being a greater diameter than the .45 caliber of the Springfield gun. This size compares with the reloading cartridge and Hubbell's patent as follows:

| | | |
|-----------------------|------------|-------|
| Hubbell's patent, | .18 =..... | .324 |
| Government reloading, | .18 =..... | .324 |
| Gill patent, Fig. 5, | .50 =..... | .2500 |

being 7.7 times too much fulminate and entirely too powerful and dangerous and too large for fire-arms or any kind of gun.

This also proves on the face of the record that the Government cartridge was introduced by the proper officers from the Hubbell patent in July, 1879, long before there was any Gill patent, and not in accordance with the Gill patent, limited and claimed only "as shown" for a groove or slot. The groove and openings or notches in the Gill patent are

rectangular and larger, not capable of use in the Springfield gun.

In the Hubbell patent the openings through the anvil over the fulminate are curved, keeping the anvil stiff and strong. The same is in the Government cartridge, and both are in line with the sides of the fulminate chamber in the outer curve. The central space in front of the anvil is largest in the Hubbell patent, .15 of an inch instead of .10 of an inch, the latter being the same diameter as the cut made in and through the Hubbell anvil, and the same in area as the two openings over the fulminate, both in the Hubbell patent and the Government cartridge using the same amount of fulminate in the same diameter of chamber, with the same width of anvil bar in the center, to explode instantly with certainty of fire on indentation of the central metal of the fulminate chamber, showing conclusively the adoption of the proportions, functions, and combination of the Hubbell patent in the Government cartridge and secured by the claim of the Hubbell patent substantially as described therein and not contained in the Gill patent.

The Gill specification uses the following language of the Hubbell patent:

1. "It (the anvil) is designed to *fit closely* within a cap or primer of ordinary form."

Hubbell says, "*closely fitting*" inside the case.

2. Gill says, "it offers a *solid surface* upon which the fulminate may be exploded."

Hubbell says, "the central anvil affords a *firm resistance*" to ignite it (the fulminate) with certainty.

3. Gill says the groove will afford a "*free passage*" for the flame to the vent or opening in the base of the shell.

Hubbell says, "and yet have *free escapement*" for the explosive force at once from beneath the anvil plate.

4. Gill says, "and that it permits the flame to pass in a *short and direct course to the powder.*"

Hubbell says this chamber at its sides or outer extreme edges *communicates "directly and exclusively with the powder charge."*

Thus copying every functional principle in the Hubbell patent and proving that Gill invented nothing at all in the combination and organization of the system of the cartridge.

The frivolous claim of a groove in a disk is nothing new in other forms of anvil, but, like a slot in mechanics, is not patentable, as decided by the United States Supreme Court.

WM. WHEELER HUBBELL,
Appellant.

GEO. S. BOUTWELL,
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F. P. DEWEES,
Of Counsel.

IN THE
Supreme Court of the United States.

OCTOBER TERM, 1897.—No. 198.

WILLIAM WHEELER HUBBELL, APPELLANT,
vs.
THE UNITED STATES.

APPEAL FROM THE COURT OF CLAIMS.

STATEMENT FOR APPELLANT.

This is an appeal from a judgment of the Court of Claims, dismissing the petition in No. 16,336, in which case William Wheeler Hubbell is claimant.

The petition is based upon a patent for improvement in cartridges, issued from the United States Patent Office to appellant, dated February 18, ~~1897~~¹⁸⁷⁹, and numbered 212,313 (Trans., pp. 28, 29, 32).

The claim in such patent is as follows:

In the bottom of a solid metallic flange cartridge case or shell, the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate provided with two or more openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described.

Very shortly after the issuance of the patent Mr. Hubbell notified the Secretary of War and asked that the cartridge be tested and used, and that he should be allowed royalty for the same. (Trans., Finding 7. p. 19.)

Subsequently to the knowledge of Mr. Hubbell's cartridge having been brought to the attention of the War Department, the Government commenced experimenting on what is known as the "Government reloading cartridge," which experiments gradually led to its manufacture and use on a large scale, resulting in its adoption as the service cartridge to the exclusion of all others.

The experiments commenced at the Frankford Arsenal in the month of July, 1879. "Owing to the juxtaposition, construction, arrangement and combination of its parts, this cartridge is best adapted to receive with certainty of fire the blows of the striker in the Springfield gun." (Trans., p. 22, 2d par., Finding XII.)

It is the contention of the appellant, in this action, that the Government reloading cartridge is substantially and identically the device covered by his patent No. 212,313, in the "juxtaposition, construction, arrangement and combination of its parts."

The petition in the case at bar was filed on the 14th of June, 1888. It presents a claim for a just and reasonable royalty for cartridges manufactured in accordance with his patent by the Government for use for nearly six years prior to that time.

A suit had been instituted by claimant for prior manufacture of cartridges (not included in the present petition) numbered 13,793 in the Court of Claims. In that action the main contention arose upon the manufacture and use of what were known as the "cup anvil cartridge."

In that action was also included in the claim certain reloading cartridges which had then been experimentally manufactured.

No claim for the "cup anvil cartridge," nor for the reloading cartridge claimed in that suit, is at issue in the case at bar. (Trans., p. 23.)

As appears by Finding IX (Trans., p. 19), No. 13,793 is still pending in the Court of Claims on a motion to amend the findings of fact.

A motion for an appeal in that case to this Court is not yet allowed. A motion of the claimant to amend order of court heretofore entered as to evidence to be used on the trial allowed, subject to objections of defendants on the argument, was pending at the time of judgment in case at bar. (Trans., p. 8.)

On the 23d day of July, 1895, the Court of Claims entered judgment in the case at bar that the petition be dismissed, finding the facts already found in No. 13,793. (Trans., p. 13, and Findings I to VIII, inc.)

The case was tried on the merits under the general traverse.

With due respect to the Court below, it is submitted that these findings are not only manifestly erroneous but are not directly in point in the case at bar, where the adopted use of the reloading cartridge is alone at issue.

So literally were the findings in case No. 13,793 found in the case at bar, that whilst there is a finding as to the amount of cup anvil and reloading cartridge manufactured under the claim presented in No. 13,793, there was no finding whatever then found as to the amount of reloading cartridges manufactured during the period covered by the present suit.

Finding IX, if material at all, shows that No. 13,793 was still pending before the Court of Claims upon motions to amend findings. The finding is defective, in that it only purports to give the substance of the proceedings in case No. 13,793, and does not present the proceedings in such form as to enable this Court to consider them if material or to be even a transcript of docket entries. Additional facts, based on evidence not in No. 13,793 at the time of former argument, were not then found, nor were patents or exhibits of any kind found.

For error manifest upon the face of the record claimant made a motion for a new trial and amended findings of fact. Additional findings of fact were found (Trans., pp. 21 and 22, Findings X, XI, XII and XIII). The motion for a new trial was denied.

Additional facts were found under headings X, XI and XII, 14 in number, together with exhibits and models, 15 in number.

Such additional facts and exhibits were not regarded by either claimant or defendant as sufficient to present the issue, and upon motion of claimant and defendant three amendments of findings, five additional findings, and ten exhibits were found. (Trans., 21 to 24, inc.)

The additional findings, exhibits and models are 47 in number. A different issue is presented in cases No. 13,793 and No. 16,261, not only because different manufacturers are the basis of the two suits, but also because different and material facts were presented to the Court for consideration.

The facts as found are incongruous and contradictory. Where there are conflicting findings they can be reconciled by this Court upon examination of the findings as a whole and in connection with the drawings, models and other exhibits.

The Court below, it is contended on the part of the appellant, has misconstrued patents and misdescribed exhibits. If there are errors in these particulars it is submitted this Court has the power of review.

ASSIGNMENT OF ERRORS.

I.

The Court erred in Finding I.

The caveat filed by claimant, April 13, 1865, together with the drawings, should have been found instead of the substance thereof, as understood by the Court. In Finding II claimant's application for a patent, dated April 13, 1865, with the drawings and proceedings thereon, should have been found instead of statements as to the substance thereof and extracts from the same. (On page 23 the incorrectness of a quotation from application is admitted.)

In Finding III the application for a patent, dated January 23, 1872, with drawings, should have been found instead of extracts from the same.

In Finding IV Hubbell patent 212,813 should have been found instead of extracts therefrom. The finding of the substance of specifications instead of the patent itself is an error.

The want of correctness in a quotation from the patent in this finding is admitted (page 23). The patent was afterwards found on a motion for a new trial. (Trans., p. 21, Finding XI.)

II.

The Court erred in Finding V.

The error consists in the dates and in the general description of what was done at the Frankford Arsenal. The Court neglected to amend Finding V, but found facts relating to the manufacture of cartridges by the Government entirely inconsistent with such finding in Finding XI. (Trans., p. 21, commencing at 2d paragraph.) Finding V should therefore be expunged.

III.

The Court erred in Finding VI—

First.—In describing the “cup anvil cartridge.” The “cup anvil cartridge” is not at issue in this suit, and therefore any description of it, as an issue, in a finding of fact, whether correct or incorrect, is immaterial.

Second.—In a misdescription of the Government reloading cartridge as shown by the exhibit cartridge in evidence.

1st.—In describing that the cartridge is rimmed around the base, when it is in fact “a solid metallic flange cartridge case or shell.”

2d.—In stating that it has “a pocket in the exterior of the center of the base,” and “through the top of this pocket, supposing the cartridge to be stood upon its base or closed end, is pierced a single aperture or hole to carry the fulminate flame to the black powder chamber.”

As will be seen by an examination of the exhibit, there is no pocket in the exterior of the center of the base of the organized cartridge. As a part of the organized cartridge, the shell is recessed as a receptacle for the fulminate chamber with an anvil over the fulminate, with two perforations near the outside edges, by means of which the fulminate and powder come in direct contact. The shell is contracted or recessed at the bottom for the purpose of forming a support to the fulminate chamber and anvil, which, when inserted, help to form a solid fire-tight base or bottom to the cartridge.

3d.—In stating "this cartridge contains only the black powder and the bullet."

The exhibit shows this description of the cartridge to be not only erroneous, but impossible, for the reason that the cartridge and bullet can only be inserted into the cartridge case or shell *after* the fulminate chamber, the fulminate and anvil are in place. If not in place, there would be nothing to keep the powder in the cartridge—it would run through the shell. The fulminate chamber, the fulminate, the anvil over the fulminate in direct contact with the powder and the bullet in a solid metallic flange cartridge case or shell constitutes the cartridge.

4th.—In stating the base "is pierced by a single aperture or hole to carry the flame to the black powder chamber."

A space for a flame is avoided; the exhibit shows that the powder and fulminate are in direct contact.

5th.—In stating as to the operation of the cartridge, "through the holes thus formed (meaning the side openings in the anvil) the flame from the fulminate escapes; if this primer is placed in the chamber of the reloading cartridge, with the closed end of the cup outward and the grooved end against the top of the chamber, the *flame* from the fulminate when exploded would pass through these holes or notches, thence along the groove to the central aperture in the cartridge case or shell, thence to the black powder chamber through this single aperture."

An examination of exhibit will show that an exactly contrary operation is the case; the powder passes through the opening, fills the grooves and is in direct contact with the fulminate; there is no flame separate from the powder—there is direct ignition of the powder which fills the groove.

V.

The Court erred in Finding VII (Trans., 19)—

In finding as pertinent to the issue the number of cup anvil cartridges manufactured from March 1, 1879, to March 31, 1883, neither that period of time nor the "cup anvil cartridge" being embraced in the present suit; also—

In finding as pertinent to the issue the number of reloading cartridges manufactured from February, 1879, to March 31, 1883, such period of time not being embraced in the present suit, many of such reloading cartridges being experimental and tested in competition with the cup anvil cartridge.

VI.

The Court erred in Finding IX (Trans. 19)—

In finding the proceedings in No. 13,793 in substance. If material the proceedings should be so found, so as to show the actual proceedings or a transcript of docket not the substance of such proceedings.

VII.

The Court erred—

In view of additional findings of fact (Trans., 21, 22), in overruling claimant's motion for a new trial.

VIII.

The Court erred in amending Finding XII (Trans., 23)—

In stating (1) "the solid flange case, with a pocket or recess to reload, has been made and used by the United States from the year 1872."

This is indefinite, if found for the purpose of showing anticipation of claimant's device for an organized cartridge.

If for such purpose, there should be found specifically the nature of the construction, the function and result of such constructions; when, how, and under what circumstances they were made and used, and furnishing exhibits of the same.

The other findings show that from 1868 up to the time of the adoption of the reloading cartridge, and some time afterwards, the cup anvil cartridge was in use by the Government. (Trans., p. 18; Finding VI, p. 22; Finding XII.)

(2) In stating "from that year (1872) until the adoption of the grooved anvil disk, described in finding VI (for which patent No. 220,472 was granted to Jabez H. Gill, October 14, 1879), various other anvil disks were made and used by the United States in this type of cartridge shell in large quantities, which anvil disks, though differing from the first mentioned type in some respects as well as from each other, secured adequate ventage to the aperture above the anvil by means of notches or openings through or at the outer portion of said disks "

This statement of facts is indefinite. If there should exist constructions such as are described they should be brought to the attention of this Court in such manner as to be considered in any bearing they may have upon the case. Anticipation cannot be assumed from vague and indefinite statements.

It also, by implication, assumes that a grooved anvil disk, patented to Jabez H. Gill, is in use in the Government reloading cartridge, which is in opposition to the Gill patent and exhibit of cartridge also found by the Court as exhibits and facts in the case.

IX.

The Court erred—

In dismissing claimant's petition.

ARGUMENT.

THE ASSIGNMENTS OF ERROR GENERALLY.

The findings of fact are incongruous, contradictory, and in construction of patents, exhibits and models inaccurate.

At the time of rendering judgment in the case at bar the facts found are literally the facts found in another case, which is still pending in the Court of Claims on a motion for an appeal to this Court, not yet allowed, and upon motions for amended findings of fact.

To such findings neither patents, drawings, models, nor other exhibits were attached.

The findings as then found were in fact so literally applicable to another case that the Court not only omitted to find as a fact the manufacture and use of the cartridges upon which the present suit is founded, but did find other cartridges not now at issue. No claim is made for the manufacture of the "cup anvil cartridge" in the present suit.

The Court substituted for the entire applications for patents, drawings, exhibits and models their own construction and description of the same, notwithstanding the construction of patents, exhibits and models are subjects of review by this Court.

The Court, in findings made at the time of judgment, found erroneous facts, which were afterwards corrected in subsequent findings on motion for new trial as "additional findings of fact." Special reference is made to Finding V, in which the time of the manufacture of metallic cartridges and the end of the use of rim-fire cartridges is fixed in 1864, the fact being (as appears in a subsequent finding) that the order for the manufacture of metallic cartridges at the Frankford Arsenal was made in the fall of 1866.

The principal bearing of this mistake in the original Finding V is that such manufacture is wrongfully placed before instead of after the application of Mr. Hubbell for a patent in 1865. This mistake places the manufacture of certain

cartridges for experimental purposes in 1864 which were actually made after the fall of 1866. (See Finding XI, paras. 3, 4, and 5, Trans., 21.)

Finding V is also wrong in referring to cartridges as in use which were made for experimental purposes prior to 1868, when the cup anvil cartridge was adopted. (See Finding XI, paras. 6 and 7, Trans., 21.)

Whether the description of the cup anvil cartridge in Finding VI is correct or not is immaterial. It is not admitted. It is surplusage; the cup anvil cartridge is not at issue in this suit. (See finding at plaintiff's request. Trans., 23, par. 6.)

The Court below misdescribed the Government reloading cartridge in Finding VI.

The reloading cartridge is asserted to contain only the shell, the bullet and powder.

Whilst insisting that a cartridge is only a cartridge when it is organized or complete in its parts, according to the original design, it may be admitted that certain forms of what are designated as cartridges do consist of shell, powder and bullet. These are generally paper cartridges manufactured in the incipency of the art.

But in the reloading cartridge there can be no such construction as shell, powder and ball as a complete cartridge, as can readily be determined by the following simple method:

Stand the Government shell unorganized flange end downward on a piece of paper; pour cartridge powder into the forward part or the mouth of the shell.

The result of this experiment will be found to be that powder will run through the aperture in the lower part of the shell, falling upon the paper.

It will therefore be seen that in the Government construction there can be no cartridges consisting only of case, powder and bullet. In organizing the cartridge, what is miscalled the "primer," must be first placed in position in the shell, followed by the powder and bullet. It is only when so organized

that the cartridges are issued. The reloading for many reasons is difficult and requires great care. (See Ex., directions for reloading.) Even these directions have been found not sufficient, and for some time past have been withdrawn with directions to send the discharged shells to the Frankford Arsenal.

To describe "a solid metallic flange cartridge case" as "rimmed around the base," is not accurate, and considered independently of the exhibit in the case might possibly be misleading. It is what is called in Mr. Hubbell's claim "a solid metallic flange cartridge case or shell." (See Patent, Trans., p. 30.)

The finding describes "a pocket exterior to the center of the base." "Through the center of this pocket, supposing the cartridge to be stood upon its base or closed end, is pierced a single aperture or hole to carry the fulminate flame to the black powder chamber."

The exhibit shows a solid flange cartridge case, the bottom part of which is recessed for the purpose of holding a fulminate chamber in place. It was a well-known construction at the time patent 212,313 was issued and well known when the Government reloading cartridge was first made, that being of later date. The top of such recess is intended in the reloading cartridge as a support for the fulminate carrier and anvil, leaving a passage of the powder to the fulminate. The aperture in the case is not intended for a passage for "fulminate flame;" the powder passes from above to the fulminate and is ignited directly by the fulminate before it reaches the aperture.

The anvil piece is described in the findings as follows:

"Above this (the fulminate) is fastened a disk or cover having a groove on the upper side, being the diameter of the circle; at each end of this groove a small piece or notch is cut out of it; *through the holes thus formed the flame from the fulminate escapes; * * * the flame from the fulminate when exploded would pass through these holes or notches, thence along the groove to the central aperture in the cartridge case or shell, thence to the black powder chamber through this single aperture.*"

An examination of the anvil piece by this Court will show a manifest error in the description as to the purpose of the groove.

As may be seen by the simple experiment before suggested, the powder has a passage through the aperture to the groove.

Further experiment is now suggested:

Place the anvil piece on a piece of paper, with groove upward; pour upon it cartridge powder, and the groove will be found sufficiently large to hold powder.

It follows, therefore, that there is direct and exclusive communication of the power with the fulminate, there being no air-chamber below or above it; that there is instant ignition of the powder in the groove; and that the groove constitutes the bottom of the powder chamber.

THE ISSUE IN PRESENT CASE LIMITED TO THE RELOADING CARTRIDGE.

In case No. 13,793 the "cup anvil cartridge" was the main issue. During the period covered by the petition in that case the reloading cartridge was used experimentally before its adoption, which was gradual. (See Trans., 19, Finding VII, as to number of each kind of cartridge manufactured and used during that period.) Mr. Hubbell is an old inventor, a student as far back as 1842 of the subject of breech-loading fire arms and explosives. He believed that he was the inventor of a number of the parts that helped to make up the organization of the "cup anvil cartridge." As is sometimes the case with inventors, he construed his patent, which was for a combination, to cover the component parts which he believed to be original with him. Parts of the "cup anvil cartridge," which he claims to have invented, he believed were covered by his patent—hence the claim made in 13,793.

Not disclaiming any right to original inventions, in the present action his claim is based solely upon the combination in the reloading cartridge covered by patent No. 212,313.

THE GOVERNMENT RELOADING CARTRIDGE IS IDENTICAL WITH THE CLAIM ALLOWED MR. HUBBELL—NO. 212,313.

Examining the organized Government reloading cartridge in connection with claim allowed Mr. Hubbell, is found—

1. A solid metallic flange cartridge case.
2. This is in both the Government cartridge and the patent. In the bottom of the cartridge case the combination of (1) a circular base (2) inclosing a central chamber of fulminate (3) and an anvil over the fulminate provided at the sides and opposite each other with two small openings.

The claim in the patent exactly corresponds with exhibit.

In the bottom of a solid metallic flange-cartridge case or shell the combination of (1) a circular base (2) inclosing a central chamber of fulminate, and (3) an anvil over the fulminate, "provided with two or more openings, whose edges nearly coincide with the edges of the central chamber of fulminate."

The construction of the Government cartridge, therefore, appears to be covered by the claim allowed Mr. Hubbell.

THE DISTINGUISHING FEATURES IN MR. HUBBELL'S INVENTION ARE ALSO THE DISTINGUISHING FEATURES IN THE GOVERNMENT RELOADING CARTRIDGE.

Comparing Government cartridge with the specification of distinguishing features in Mr. Hubbell's patent from other inventions. (Trans. 29, 2d Column, 1st page.)

Patent: "The fulminate, although the superior explosive force is contracted into a diminished or small central chamber and fills it."

Exhibit: In the cartridge the fulminate chamber is in the recessed plate or cap immediately below the anvil piece and bar. The chamber is filled with fulminate. There is no chamber or space below the fulminate into which the explosive force may expand.

Patent: The flange and head of the metallic case are solid—all in one piece.

Exhibit: An examination of the Government cartridge will show a flange and head that are solid. It is exactly the same construction provided in the patent, where paper, as will hereafter be fully shown, is dispensed with. The base is fire-tight, of one piece with the flange, made so by directions in "Ordnance Office official orders to load the reloading cartridge." (Exh., Find. XIII, Trans. 22.) Unlike the folded flange, a solid flange offers no room for expansion and consequent bursting at that point. It required no reinforcement cup.

Patent: This chamber, at its sides or outer extreme edges, communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out, but is compelled to diffuse its explosive force, not in a central stream, but in a diffused body into the base of the powder charge.

Exhibit: The above is the exact description of the Government cartridge. As has been before demonstrated by experiment, the powder is in direct contact with the fulminate at the apertures, notches or perforations of the anvil at the sides of the fulminate chamber. It is distinguished from the Howe and Smith and Wesson by having no air chambers below the anvil into which it may expand. There is no central opening in the anvil. There is no escape for the exploded fulminate except at the vents. It is compelled to diffuse its explosive force into the base of the powder charge at each vent.

The *patent* continues:

To effect this the central "anvil-piece" has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate.

Exhibit: The construction of the "anvil-piece" in Government cartridge is precisely the same. The anvil-piece has "no central aperture." It "is as wide as the fulminate-filled chamber." "The perforations are at the extreme outer sides of the fulminate."

The similar construction is for the same purpose in both cartridges.

This construction is for two purposes.

Patent: One is to diffuse the fire from this center most thoroughly. The other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber to receive the central blow of a striker and obtain complete resistance by the anvil bar, and yet have free escapement for the explosive force at once from beneath the anvil-plate without any chamber or space for it to expand into under the plate.

Exhibit. In the Government cartridge the anvil-piece rests solid in its chamber, the anvil bar is sufficiently wide to receive with certainty the varying blows of the striker in the Springfield gun, the vents, notches or openings in the anvil-piece are for free escapement, there are, as has been shown by experiment, no chamber or air space under the anvil for the fulminate flame to expand.

The result the same.

Patent. This assures a certain ignition, security of the anvil-plate to keep its position, and a complete combustion of the powder charge, from the base forward, as it impels the bullet out of the gun.

Exhibit: Owing to the juxtaposition, construction, arrangement and combination of its parts, this cartridge (the Government reloading) was best adapted to receive with certainty of fire the blows of the striker of the Springfield gun. (Trans. 22, Find. XI, 2d par.)

**THE GOVERNMENT RELOADING CARTRIDGE IS
AN IDENTICAL CONSTRUCTION DESCRIBED IN
THE SPECIFICATIONS OF THE PATENT—212,313.**

Hubbell's patent, 212,313 in the specifications, refers to two different fulminate chambers, to both of which the distinguishing characteristics of his invention apply.

One chamber is obtained by the perforation through the center of a circular disk of paper or other suitable substance. This construction is specifically shown in the drawings. Another form of the fulminate chamber is described in the specifications as follows:

The fulminate chamber, *C*, may be recessed or formed in the metal of the circular plate, *E*, with central bar, *I*, and two side perforations, *KK*, over it, dispensing with the paper.

This is exactly the Government construction—a recessed plate or what is sometimes called a cap. It is made by punching the plate. The fulminate is contained in the bottom of the cap. “*Over it*” is the anvil bar with side perforations.

The specifications in the patent are specific as to the method of holding the combination in this form in place; in both cases the metal is contracted or pinched over the anvil. The test of the sufficiency of specifications for the purpose of construction is as to whether a good mechanic or a mechanic skilled in the art could, without invention, make the construction. *Ives vs. Hamilton*, 92 U. S., 426; *Hogg vs. Emerson*, 6 How., 437; 11 How., 587.

A specification in a patent is sufficiently clear and descriptive when expressed in forms intelligible to a person skilled in the art to which it relates. *Sebury vs. Am. End.*, 152 U. S., 561.

The specification of a patent is to be construed in the light of that knowledge which existed in the art at the time of its date. *Lawther vs. Hamilton*, 124 U. S., 1; *Burt vs. Ivory*, 133 U. S., 349.

A specification is to be addressed to those skilled in the art to which the patent relates, and is to be comprehensible by by them. It may be sufficient, though the unskilled may not be able to gather from it how to use the invention. *Mowry vs. Whitney*, 14 Wall., 620.

Applying the above tests to claimant's device and the Government cartridge, it is sufficient to state that Mr. Jabez H. Gill, a mechanic skilled in the art, did construct the Government reloading cartridge, without invention, after Mr. Hubbell's patent was presented to the consideration of the United States Government. On the 22d day of March, 1879, claimant notified the Secretary of War of patent 212, 313 issued, February 18th of the same year. (Finding VII, Trans. 19.) Experiment with the reloading cartridge commenced in July, 1879.

The finding of the Court, that the cup anvil cartridge was abandoned in July, 1879 (Finding XII, Trans. 22), must be considered in connection with Finding VIII, (Trans. 19), where it is stated that from March 1, 1879, to March 31, 1883, the United States manufactured 14,714,082 cup anvil cartridges, and after February 18, 1879, used 2,700,000 theretofore made; in all 17,414,082.

During the same period there was manufactured 3,866,352 reloading cartridges and 9,373,700 primers. From these figures, found by the Court, the meaning of the two findings taken together appears to be that whilst the manufacture and use of the cup anvil cartridge continued, the experimental use of the reloading cartridge commenced in July, 1879.

Jabez H. Gill has been at the Frankford Arsenal for many years, as far back as 1864. His duties were those of a machinist or skilled mechanic. (See *Gill vs. U. S.*, 25 C. Cls., 416.) He prepared the drawings in Ordnance Mem. No. 14. (See letter of transmittal of Maj. T. J. Treadwell, Ch. of Ordnance.)

From the character of his duties the Hubbell device was presented to him. He was familiar with the various cartridges experimented upon and used by the Government. The Patent Office shows he is the patentee in a number of inventions relating to the manufacture of cartridges.

There is no groove in the top of the Government reloading cartridge for the passage of the *flame* of the fulminate to the powder. As has been demonstrated, both the vent and groove in the top of the anvil piece are sufficiently large to pass powder and hold it in the groove, thereby constituting it the bottom of the powder chamber, where the fulminate is in direct and exclusive communication with the powder charge.

Mr. Hubbell illustrated in specifications and drawings the holding of the anvil piece in place where paper was used as a fulminate keeper, by contracting, pinching or indenting the shell directly over the anvil plate. But that method was no part of his invention and was not claimed as such. Any other known method of holding the plate in place would un-

doubtedly be covered by his claim. It would be an equivalent. So with the recessed plate containing fulminate and anvil; he was entitled to the benefit of any known invention for keeping the combination in place, the only limitation being that it should be in a solid metallic flange case.

A groove at the top of the anvil piece might be dispensed with without in any way affecting the operation of the cartridge. If, as is the case, in the Government cartridge there is direct contact of the fulminate with the powder charge, and cartridge shell is only recessed to keep the combination solidly in place, the opening aperture in the cartridge shell could be made much larger without in any way injuriously affecting the operation of the combination.

If the vents in the construction were closed from the powder no invention would be required to open a passage way through the top of an anvil plate.

It can readily be seen that the aperture in the shell is reduced to a smaller size than is necessary to give the shell sufficient strength to hold the combination in place; the passage way is not for flame, and no good results follows; such is shown in numerous instances in gas check devices in front face of a block anvil in Ord. Mem. 14.

Even if the groove above the anvil piece did not hold gunpowder, and the flame did first meet the powder at the aperture, Mr. Hubbell's invention would apply to the Government cartridge.

As has been illustrated, the powder charge in the Government cartridge is in actual communication with the fulminate. But his invention does not depend upon the actual touch of the powder and fulminate.

Part of his combination was a solid flange cartridge shell—this for strength—as offering no place for expansion at or near the flange and consequent bursting of the shell; no necessity for a reinforce, as in a hollow flange, and preventing transverse spreading in firing and stripping in extraction. The other elements of the combination were placed in such

juxtaposition in the shell as to leave no space for air chambers below the anvil. Such juxtaposition of the parts in and in connection with the solid flange shell was to make such a system of tight jointure in assembling as could be maintained and increased at the time of the explosion of the gunpowder. The purpose of the anvil piece is not only to receive the blow of the striker upon the anvil bar, but is also important, by reason of its position and relation to other parts of the combination, to maintain its relative position. It is a retaining disk, as well as an anvil, so specified in the patent. At the time of the explosion of the powder charge the pressure upon it is backward, rendering, in the absence of air chambers below the anvil, the bursting of the cartridge shell at the base next to impossible. The words in the patent therefore that the fulminate "chamber at its outer or extreme edges communicates directly and exclusively with the powder charge" is for the purpose as stated, viz: "That the explosive force of the fulminate is not allowed to expand *under* a larger area of the anvil plate and blow it out."

One difficulty that inventors of cartridges had failed to overcome was in the expansion of the fulminate below the anvil, and it was this difficulty among others claimant in his patent sought to overcome. He did it in a system which was the full development of a necessity in the construction of cartridges, which the record shows he had conceived many years before and which had its perfected result in the present patent. If the effect of his construction was to communicate the whole of the fulminate fire exclusively to the powder charge, it is immaterial that *above* the anvil should be a very small channel to the powder. The ignition is instantaneous, the powder in explosion operating upon the expulsion of the bullet, and not backward in such way that the shell might be bursted and the effect of the combination be lost.

CONDITIONS EXISTING WHEN THE MANUFACTURE OF GOVERNMENT RELOADING CARTRIDGE WAS COMMENCED.

For the purpose of showing the circumstances under which the Government reloading cartridge was first manufactured, a brief review of pre-existing conditions as shown by the findings of fact, public reports and records, and current history, of which the Court may take judicial cognizance, is made.

At the close of the war, in 1865, a limited experience in the use of breech-loading fire-arms had established in the minds of ordnance officers their value. Breech-loading fire-arms had been long known; they were in use immediately after the discovery of gunpowder, but difficulties incident to their use led to their abandonment. During the present century invention has been turned in the direction of their use, but only in the Franco-German war were breech-loaders adopted to any very great extent, and then most successfully with paper cartridges. Prior successful use had been with sporting guns where only light charges of ammunition were required.

At the close of the civil war in the United States there were a very large number of muzzle-loaders in the possession of the Government, which, from motives of economy, it was deemed desirable to change to breech-loaders.

The most practical way to make this change and the form finally adopted (see exhibit, Springfield gun) was to cut away a portion of the upper face of the barrel at its lower end, near the stock, and insert therein a breech-block opening upwards and forward. This construction required, to be effective, a center fire cartridge (in place of a rim-fire where the fulminate was in the flange) to be struck at an angle by the firing pin or striker.

Although some unsuccessful experiments had been made by the United States with Morse, Burnside, and Maynard cartridges (Ordnance Mem. No. 14, Plates 1, 2, 3), rim-fire cartridges were generally used up to the fall of 1866,

when the order was first given at the Frankford Arsenal for the manufacture of center-fire cartridges.

After a number of experiments at Springfield, Mass., and practical tests in service, the breech-loading gun substantially as now used was, by act of Congress, in 1872 adopted.

The great difficulty was to obtain a cartridge best adapted to the new gun. Prior to the fall of 1866, when experiments and manufacture commenced at Frankford Arsenal, a very large number of cartridges had been invented and used both in this country and abroad. But none of these were regarded as satisfactory. Whilst a great number of cartridges had been invented prior to 1866, the use of metallic shell cartridges in breech-loading guns was not general. The drawing of metals was a recent invention and not then generally adopted. Cast bases for shells had not been abandoned in 1872 (see Ordnance Mem. 14, Plate LII).

A large number of experiments with cartridges were made at Frankford Arsenal after 1866, none of which were fully successful. The most of the experiments were with folded head cartridges with gas check devices. The "cup anvil cartridge" adopted in 1868 was not satisfactory; subsequent experiments after 1868 to reinforce the hollow flange were made without success. (Trans., p. 22, Finding XI, par. VII.)

In this condition of cartridge use by the Government Mr. Hubbell's cartridge was presented in March, 1879.

APPELLANT AN ORIGINAL INVENTOR—THE ORIGINATOR OF A SYSTEM.

Mr. Hubbell, the appellant, is an old man, an old inventor who has devoted many years to the study of breech-loading fire-arms, explosive and cartridges. This fact is attested by many inventions issued to him from the Patent Office, and by reports of Congressional Committees. It is shown in reports of the Court of Claims (Hubbell, 5 C. Cls., 1; Hubbell, 20 Id., 365).

Patent No. 212,313 illustrates a perfected system of a metallic cartridge based upon an original system suggested in his *caveat* and application for a patent for a cartridge filed in 1865, followed by applications in 1872 and 1878. (Trans., pp. 13 to 16; Find. I to IV.)

In Finding I it is declared the caveat was prepared in 1842. The finding, imperfect as it is, discloses at that early date a center-fire cartridge, an enclosed fulminate chamber in the center of the base, the cartridge to be fired by a drill, the powder over the fulminate chamber.

In application of 1865 (Finding II) a center-fire instead of a rim-fire cartridge is claimed. Cartridges with solid flanges were in the then state of the art not being made, the folded cartridge flange was in use. Mr. Hubbell understood the necessity of a solid flange and under the then state of the art proposed to make it mechanically solid. He used a small amount of fulminate in a chamber with free escapement through vents in an anvil placed over it. He understood the relatively great power of fulminate and quickness of its ignition over that of gunpowder. The anvil was placed solidly in position, having sufficient surface and strength to receive the blow of an oblique striker, and at the same time to allow free escapement of the fulminate fire. In the construction the fulminate and powder were in direct contact. The cartridge was intended to be fire-tight.

Whilst the Government up to 1879 was making the effort to use successfully a hollow folded-head cartridge without success in reinforcing it, Mr. Hubbell was perfecting a combination of a solid flange-cartridge shell, when organized, fire-tight; a diminished or relatively small fulminate chamber, with a strong anvil over the fulminate to receive the blow of the striker, with perforations sufficiently large to allow the exploded fulminate exclusively and directly to ignite the powder without any air chamber under the anvil requiring gas checks. He aimed in his cartridge to meet the requirements necessary to successfully use the Springfield gun and to obviate the difficulties encountered in other inventions.

THE RESULT.

Directly after Mr. Hubbell, in 1879, presented his patent No. 212,313 to the War Department, the former line of experiments at the Frankford Arsenal were abandoned and the reloading cartridge was after thorough tests gradually adopted.

IT IS NOT NECESSARY THAT TWO MACHINES SHOULD BE SIMILAR IN FORM TO BE IDENTICAL.

Whilst it is claimed, in behalf of appellant, that the Government reloading cartridge is identically a device which a mechanic skilled in the art might construct from the specification in patent No. 212,313, it is not necessary in a primary patent that similarity of form should be observed.

In *Winons vs. Denmond*, 14 How., 330, the Court say:

Where a patentee has described his invention and shown its principles, and claims it in a form which perfectly embodies it, in contemplation of law he is deemed to claim every form in which his invention may be copied.

And see *Root vs. Ball*, 4 McLean, 177; *Alden vs. Derwey*, 1 Story, 366; *Parker vs. Haworth*, 1 McLean, 370; *Howe vs. Abbott*, 2 Story, 190; *Sewell vs. Jones*, 91 U. S., 171; *Cantred vs. Wallack*, 117 U. S., 689; *Evans vs. Eaton*, 1 Wheat., 356; *LeRoy vs. Tatham*, 14 How., 156; *O'Reilly vs. Moore*, 15 How., 62; *Corning vs. Troy Factory*, 15 How., 451; *Burr vs. Dwyer*, 1 Wall., 567; *Jacobs vs. Baker*, 7 Wall., 295; *Whitley vs. Swayne*, 7 Wall., 685; *Agwan Co. vs. Jordan*, 7 Wall 583; *Norton vs. Jensen*, 1 C. C. App., 452; *Curtis on Patents*, par. 220, 221.

The authorities on the above point are numerous. Any seeming variation of the rule only arises where the *form* of the device is the essence of the patent. *Warner vs. King*, *Supra*.

A patentable invention is a mental result. The intellectual element is recognized as the test of identity, for anticipation

and infringement. *Smith vs. Nichols*, 88 U. S., 118; *Bischoff vs. Wetherell*, 9 Wall., 812; *Clough vs. Barker*, 106 U. S., 166; *Miller vs. Force*, 116 U. S., 157.

Judge Nelson, in *Blanchard vs. Beers*, 2 Blatch., 116, said:

The same test, and one that a jury should be guided by in all cases of this kind, is whether or not defendant's machine, whatever may be its form or mechanical construction, has incorporated within it the principle, or the combination, or the novel ideas which constitute the improvement to be found in plaintiff's machine. If it does, no matter what may be its mechanical construction or form, it is an infringement, an appropriation of the ideas of another, simply in a different form.

Upon this point see *Tatham vs. Le Roy*, 2 Blatch., 486.

ANTICIPATION.

An effort has been made to show anticipation. It is to be assumed that amongst the larger number of American and foreign patents those sent as exhibits in this case, cover that ground of defense.

AMERICAN PATENTS.

Moffitt, 53,169.

This cartridge contains no single element of the Hubbell combination. The case may be either with or without a flange. The flange shown in drawings is hollow. The case is primed with a fulminate material in its center, and its periphery around, and is with a wad consumable when the cartridge is fired.

Tibballs, 87,125.

The purpose of this patent is to show how an anvil, slightly wider than the diameter of the cartridge shell at the mouth, may be inserted from the mouth of the cartridge so that when forced into the bottom it will expand into an open flange. It does not describe a fulminate carrier separate from the anvil and the case, or describe how the fulminate is to be inserted. It has but one small vent in the anvil plate. It does not contain the Hubbell combination. As to the method of rendering the flange of the cartridge solid by the insertion of the disk, it is anticipated by the Hubbell application of 1865.

Tibballs, 90,607.

The purpose of this patent is to insert a cup within a hollow-flange metallic case in such manner as to cover and protect the flange.

There is no separate anvil; the anvil is the cup; the fulminate is not described, except that from the description of construction it must be outside and below the cup. It does not show any fulminate chamber, nor any separate fulminate carrier, separate from the anvil and enclosed in a circular base.

It does not contain the Hubbell combination. The purpose of the invention is not the same, the elements are not the same, nor have they the same functions, nor is the result attained the same.

R. J. Gatling, No. 78,953.

This is a cup anvil; the anvil part is a teat projecting backward; the shell is hollow flange, a percussion cap lies between the shell and the teat. It bears no resemblance either in principle or construction to the combination found in the Hubbell or the Government cartridge.

J. R. Van Vechten, No. 87,735.

This is a cup in a hollow flange case; funnell shaped, small perforation at the center; fulminate covered with paper and shellac. The claim is for covering fulminate with shellac and paper. Bears no resemblance to the patent or Government reloading.

B. S. Roberts, No. 86,297.

A hollow flange cartridge shell, holding a star-shaped anvil in the flange. No principle of free escapement ventage, no tight jointure. Does not contain either the principle, construction or combination of patent or Government reloading cartridge.

ENGLISH.

J. Miller, 2906, sealed, May 11, 1866.

Has no fulminate of mercury or detonating powder. No fulminate at all. It is an open large chamber between chlorate of potash on one side and amorphous phosphorous on the other. Has no resemblance to Hubbell combination.

J. M. Milbank.

This has no anvil bar, no solid flange, no overlap, no separate carrier; is not the Hubbell or Government combination.

E. T. Hughes, 1184.

This specification is for combining different layers of different powders to make an accelerating cartridge with different degrees and times of combustion. There is no description of any priming or igniting devices, nor any ground plan. There is no description of a free escapement ventage or instantaneous explosive principle.

J. H. Johnson, No. 1530.

This has a teat anvil formed in the metal of the case and a cup gas check to protect a hollow flange. Has no separate fulminate carrier with separate anvil to mechanically create a tight jointure and form a separate igniting device. Has no free escapement principle. It does not resemble in any way the patent or Government cartridge.

As will be seen there is nothing in the above patents cited by defendants in any way anticipatory of Mr. Hubbell's patent.

Ordinance Mem. No. 14 contains drawings of a number of experiments made by the Government in a search for a perfect cartridge. They were mainly for the purpose of remedying the faults of the "cup anvil cartridge." Mr. Hubbell's patent, as has been before stated, was the perfection of a system. It is a complete invention.

Reference is made to plates 1, 2, and 3, Ordinance Mem. 14, for the purpose of showing that neither the Morse, Burnside, nor Maynard cartridges bear any resemblance whatever to the reloading cartridge.

It will be observed by reference to Ord. Mem. 14 that the experiment shown in plates preceding LII are confined to folded flange cartridges, and to a great extent in an effort to remedy the defects in the "cup anvil cartridge." The remainder of the plates consist in experiments with solid heads

to the cartridge and some with the solid metallic flange cartridge case. It will be observed that none of them are on the line of Mr. Hubbell's invention of a combination inserted in a solid flange metallic cartridge case, fire-tight, with parts in such juxtaposition and combination as to satisfactorily meet the requirements of the Springfield gun.

If the thing alleged to have been in anticipation of a patent rested in speculation or experiment, and has not reached consummation, it cannot avail to defeat a patent that was founded upon discovery or invention that was completed. *Washburn, etc., Man. Co. vs. Beaten Wire Fence Co.*, 143 U. S., 276.

The finding in defendant's request (Trans., p. 23) is of too vague and indefinite a character to be discussed. That a solid flange cartridge case was original with Mr. Hubbell is not claimed. It is, however, used in prior application and patents in combination. Whatever other anvil disks may have been invented does not appear. That they differed from the Government disk and from each other is found.

It is found (Trans. 22, Find. XI.)

After 1868 numerous experiments were made to reinforce the hollow flange to prevent it from bursting, some with single disks, some with reinforce cups and some with the cup-anvil.

It was found that the cup-anvil, as used in the service, was only an anvil having no value as a reinforce.

(Finding XII, Trans. 22. See amendment, p. 23.) The cup-anvil cartridge was adopted by the Government in 1868, and has since been manufactured and used by it until July, 1879.

Owing to the juxtaposition, construction, arrangement and combination of its parts this cartridge (the reloading) was best adapted to receive with certainty of fire the blows of the striker in the Springfield gun.

Mr. Hubbell's Patent is for a Combination.

A defense that the patentee was not the first or original inventor cannot be sustained by proving that a part of the entire invention is found in one prior patent, printed

publication or machine and another part in another. *Parks vs. Booth*, 102 U. S., 96; *Bater vs. Cox*, 98 U. S., 31; *Imhaeuser vs. Buerk*, 101 U. S., 647.

IMPLIED CONTRACT.

Under the decision in the *McKeever* case, 14 C. Cls., p. 396, affirmed by this Court and by a number of subsequent decisions, there can be no question of the right of claimant to recover under an implied contract. This patent was presented to the Government with a request that it might be used. The usage of the Ordnance Office of the War Department to compel a patentee to submit the validity of his patent to the Courts before payment of royalty is well recognized. In doing so, there is no purpose of disputing its validity. Irrespective of invention, it is the purpose of the Government in its constructions to adopt the best. In taking this course the decision as to any question of infringement is shifted by the War Department to the Courts. Since the decision in *James vs. Campbell*, 104 U. S., 356, this Court and the Court of Claims has held that the patentee may waive the tort and sue upon an implied contract.

THE JUDGMENT.

The Court below has fixed as a fair royalty \$1.50 per thousand cartridges. This covers the amount of royalty claimed. The number claimed in the present suit is 105,065,990 found in claimant's request for findings allowed by the Court (Trans. 23) as follows:

From 31st March, 1883, to 31st May, 1888, the United States manufactured 39,224,315 reloading cartridges and 65,841,675 primers.

What are termed "primers" are claimant's combination, ready for distribution and distributed to be inserted in the solid metallic flange cartridge case by a mechanical process.

Such insertion is made after the distribution of the cartridges. (See Exhibit, Finding XIII, Ordnance Official Order to load the reloading cartridge.)

The distribution of the so-called primers by the Government for use in the solid flange cartridge case is as to each primer manufactured for such use the adoption and use of his invention.

The cost of making the cartridge is no necessary element in fixing the amount of royalty. It may be too much or too little; dependent on many other circumstances. The royalty as fixed by the Court at \$1.50 per thousand is not questioned in this case, and is not a subject of review by this Court.

The Court is respectfully requested to reverse the decision of the Court below in dismissing petition and direct judgment in the sum of \$157,508.98.

GEORGE S. BOUTWELL,

F. P. DEWEES,

Attorneys for Appellant.

In the Supreme Court of the United States,

OCTOBER TERM, 1897.

| | | |
|--------------------------|---|----------|
| WILLIAM WHEELER HUBBELL, | } | No. 198. |
| appellant, | | |
| v. | | |
| THE UNITED STATES. | | |

APPEAL FROM THE COURT OF CLAIMS.

APPELLEE'S BRIEF.

STATEMENT OF THE CASE.

On December 28, 1878, the appellant filed in the United States Patent Office an application for a patent for an improvement in metallic cartridges, the claims being as follows:

1st. The circular plate E, constructed with central solid resisting piece *i*, and two or more side perforations *k*, *k*, substantially as described, applied within a metal case, with cylinder and rear end solid and tight, thereby requiring the insertion of

the plate and charge and priming from the front, igniting the charge and remaining fire-tight in firing as described.

2nd. The circular plate E, constructed as described in combination with the circular disc D, and metal solid fire-tight case A, substantially as shown and described.

3rd. A circular metallic tight-fitting plate perforated into a central fulminate chamber, leaving a central solid or unperforated bar over the fulminate chamber, within a solid fire-tight metal case, substantially as set forth. (Rec., 16, 38-39; see figure, Rec., 28.)

The examiners held that all of these claims had been anticipated by prior patents and rejected the application. Thereupon the claimant amended his specification by a more specific description of the precise features of what he alleged to be his invention, and substituted the following as his claim:

In the bottom of a solid metallic flange cartridge case or shell the combination of a circular base enclosing a central chamber of fulminate and an anvil over the fulminate provided with two or more openings whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described. (Rec., 39, 40.)

Upon that claim letters patent No. 212313 were granted to him February 18, 1879. (Rec., 16.)

On March 22, 1879, appellant notified the Secretary of War that his patent had been granted, and asked an allowance of royalty on manufactures of the cartridges protected thereby. (Rec., 19.)

From the year 1872 the United States has made and used cartridge shells of the following type, viz, a hollow metallic shell, with solid flanged base, and a pocket in the exterior of the centre of the base, this pocket being pierced at the centre of the top (supposing the cartridge to stand upon its base) by a single aperture to carry the fulminate flame to the powder chamber. (See figure, Rec., 35.) This shell, when in use, contains within the powder chamber only the powder and the bullet; a small anvil plate or disk, and a small metal cup containing fulminate being inserted into the pocket, so as to ignite the charge when the cup is struck by the firing pin. (Rec., 18, 19.) From 1872 until 1879, when a certain grooved anvil disk was adopted (for which patent No. 220472 was granted to Jabez H. Gill, October 14, 1879, Rec., 33, 34), various other anvil disks were made and used by the United States in this type of cartridge shell in large quantities, which anvil disks, though differing from the Gill type in some respects, as well as from each other, secured adequate ventage from the fulminate chamber to the aperture at the top of the pocket by means of notches or openings through or at the outer portions of the said disks. (Rec., 23, 24.)

The Gill anvil disk has a groove across the upper side, and notches cut out of the disk at each end of this groove, so that when the disk is in place the entire area of each of these notches is over the fulminate chamber, and the fulminate flame passes through the notches to the groove, and by the groove to the powder chamber through the aperture at the top of the pocket. That portion of the disk which is between the notches serves as the anvil.

The complete cartridge, with this type of anvil disk, was known as the "reloading" cartridge. (Rec., 18, 19.)

On April 19, 1883, appellant filed a petition in the Court of Claims, alleging that the cartridges made and used by the United States were covered by his patent, and that the same had been made and used under an implied contract to pay him a reasonable royalty therefor. The case was tried, and this petition was dismissed by the Court of Claims June 1, 1885. On August 14, 1885, the appellant moved for a new trial, amendment of findings, and reversal of judgment. On December 14, 1885, the Court of Claims made the following order:

Motion of claimant for new trial overruled, with leave to submit to the consideration of the court findings 2, 3, and 4, amended in form requested by claimant in his motion, subject to objection of the defendants to their allowance. (Rec., 19, 20.)

On October 8, 1886, appellant filed his request for the amendment of the said findings in accordance with the order of the court, but no final action has ever been taken thereon. (Rec., 20.)

On August 21, 1885, appellant filed an application for an appeal to this court from the judgment of June 1, 1885, but has never moved for the allowance of the appeal.

On June 11, 1888, the appellant filed a petition in the Court of Claims, in the present case, setting up the grant to him of Letters Patent No. 212313, the manufacture by the United States of cartridges during the period since he had begun his previous suit, and the facts from which he claimed that a contract by the United States for the

payment to him of reasonable royalties for the manufacture of cartridges should be implied. (Rec., 1-9.)

On the trial of this case the court below made the following finding:

The facts in this case are the facts already found in case No. 13793 between the same parties as to the same subject-matter, except as to the time since the beginning of the other action, during which time, to wit, from the beginning of the other action to the beginning of this action, the Government manufactured cartridges of the same form and kind as those described in these findings, known as the "re-loading" cartridge; in which case, No. 13793, the following proceedings were had and the following facts were found, which facts are now found herein and are hereto annexed, as follows, to and including finding 8. (Rec., 13.)

In addition to repeating the findings which had been found in the first case, the court below made a finding as to the proceedings which had been had in the previous case, and decided, as a conclusion of law, that the petition be dismissed.¹ Additional findings were subsequently made at the claimant's request, the court being of the opinion that they were not in substance different from those theretofore filed, and did not affect the result theretofore reached. Afterwards these additional findings were amended at the defendant's request. Thereupon this appeal was taken. (Rec., 13-41.)

¹The statement in appellant's brief (p. 5), "The court filed no opinion in case 16261, but filed an opinion in case 13793," is calculated to mislead. The opinion in case 13793 was rendered June 1, 1885. Case 16261 was tried December 5, 1895, and the judgment (from which the present appeal was taken) was rendered December 23, 1895.

BRIEF OF ARGUMENT.**THE EFFECT OF THE DOCTRINE OF RES JUDICATA.**

As to this point, it is submitted that the judgment of the court below should be affirmed, because—

THE ONLY ISSUE PRESENTED IN THIS CASE WAS BETWEEN THE SAME PARTIES AND CONCERNING THE SAME SUBJECT-MATTER AS AN ISSUE UPON WHICH THE COURT HAD RENDERED ITS JUDGMENT ON JUNE 1, 1885, WHICH JUDGMENT HAS NEVER BEEN VACATED OR REVERSED.

The petition in the present case avers (Rec., 6) that "your petitioner has pending a suit for compensation up to March 31, 1883, case No. 13793, in the Court of Claims;" but the record of that case shows a judgment dismissing the petition entered June 1, 1885, and a motion for a new trial made and overruled, with leave to present amendments to certain findings subject to the defendant's objection. As that case stands, therefore, there is a judgment against the claimant, the present appellant, upon the question whether the Government reloading cartridge is covered by the claimant's patent No. 212313, the very issue (as the court below has found *as a fact*) presented in the present case. That judgment is final on its face, and has never been vacated, reversed, or modified in any way; and hence, by the well-known doctrine of *res judicata*, the court below could not in the present case do anything else than dismiss the petition.

In *Dubois v. P., W. & B. R. R. Co.* (5 Fish. Pat. Cas., 208) the plaintiff had sued for the use by the defendant company of his patented invention for building piers for bridges, averring that it had been used in five piers.

The issue was decided in his favor, whereupon he brought suit for the use of the same invention in nine other piers of the same bridge, and it was held that the only matter in issue having already been decided by a competent court, it was *res judicata*, and no defense could be allowed.

In *Barker v. Stowe* (11 Fed. Rep., 303), suit was brought for the alleged use of a patented device, and judgment was entered for the defendant. In a subsequent proceeding between the same parties for an alleged use of the same device, it was held that the issue "can not be tried again between the parties."

A verdict in favor of a patent is sufficient, without any other proof, to support an injunction against future violations of the patent right. (*Poppenhausen v. N. Y. Gutta Percha Comb Co.*, 4 Blatch., 184.)

A judgment between the same parties, on the same issues, by the same or a superior tribunal, is conclusive against the defeated litigant and his privies, as well as against all who so participated in the suit as to control the action. (Robinson on Patents, § 1017.)

This court has so recently and so thoroughly considered the doctrine of *res judicata* in the case of the *Southern Pacific Railroad Company et al. v. United States* (168 U. S., 1, 48) that it seems superfluous to dwell at greater length on this feature of the case, the court below having found *as a fact* that all the conditions requisite for the application of the doctrine of *res judicata*, namely, identity of issues, of parties, and of the characters in which the respective parties sue or are sued, exist as between the present case and that previously brought.

The appellant's assignments of error are found on pages 4-8 of his supplemental brief. Although the sole point on which the present case was decided was that of *res judicata*, no error is specifically charged as to this, and the only assignment of error that can cover the point is the general one (IX) that the court below erred in dismissing the claimant's petition. As far as the appellant's brief discloses, the contentions advanced against the finality of the former judgment appear to be as follows:

(1) Case No. 13793 is still pending in the Court of Claims on a motion to amend the findings of fact. (Suppl. brief, p. 2, last paragraph; also p. 9.)

(2) An application for an appeal from the judgment in that case has been filed, but the appeal has not yet been allowed. (Appellant's brief, p. 5; suppl. brief, p. 3; also p. 9.)

(3) Different issues are presented in cases Nos. 13793 and 16261. (Suppl. brief, p. 4, 3d paragraph.)

These contentions will be considered in their order.

The judgment in No. 13793 not affected by the motion to amend findings.

The record contains these entries of proceedings in case No. 13793:

August 14, 1885. Motions for new trial, amendment of findings, and for reversal of judgment filed by claimant.

December 14, 1885. Motion for claimant for new trial overruled, with leave to submit to the consideration of the court findings 2, 3, and 4, amended in form requested by claimant in his motion, subject

to the objections of the defendants to their allowance. (Rec., 20.)

This does not mean that there were three distinct motions—one for a new trial, a second for an amendment of the findings, and a third for the reversal of judgment—and that the court has overruled only the first. The motion for reversal of judgment is obviously but another form of motion for a new trial, and in entering its decision to overrule the motion for a new trial the court must necessarily be understood as overruling the motion for reversal of judgment also in case that motion could be considered to have any separate existence apart from the motion for a new trial. A mere motion to amend the findings is simply a motion for a revised statement of the facts as to certain specified points, without involving any change in the judgment; and certainly, even if that motion had been finally disposed of and the desired amendments had been made, the court would not have changed its previous judgment, because it had expressly announced that it would not have a new trial of the case, and hence that it intended its judgment to stand.

If a motion for a new trial had been pending, it could not have been regarded as affecting the judgment in any way until the motion was heard and the judgment vacated. (*Harris v. Barnhart*, 97 Cal., 546; *Chase v. Jefferson*, 1 Houston, Del., 257; *Young v. Brechi*, 19 Nev., 379.) In these cases it has been specifically held that a judgment will operate as *res judicata*, although a motion for a new trial be pending, and this is adopted by text writers as a correct statement of the law. (Black on

Judgments, sec. 512; Freeman on Judgments, sec. 328.) Even without the adjudication of courts upon the point, it is evident that a mere motion for a new trial can not in the absence of express statutory provision, impair the effect of a judgment of the court, as a party to a suit can not, by his unaided action, nullify what the court has announced as its final determination. In the present instance, however, the motion for a new trial was not pending, as it had been made and overruled, and there remained only the motion to amend the findings, which could have no conceivable effect on the finality of the judgment.

Appellant's supplemental brief (p. 3) further states that "a motion of the claimant to amend order of court heretofore entered as to evidence to be used on the trial allowed, subject to objections of defendants on the argument, was pending at the time of judgment in case at bar." Strictly speaking, this motion could not have been pending, because it had been allowed, yet even if it had been pending it could not have affected the finality of the judgment. Being a motion as to the evidence to be used at the hearing (the word "trial" is a misnomer, though the record so reads) of the motion to amend findings, it was necessarily subordinate to that motion, and could have no independent effect upon the judgment.

The judgment in No. 13793 not affected by the filing of the application for an appeal.

The record in case No. 13793 contains the entry: "August 21, 1885. Application for appeal filed by

claimant." (Rec., 20.) In the United States there is no universally accepted rule as to the effect of the allowance of an appeal upon the judgment appealed from, but the most reasonable rule would seem to be that until the judgment is reversed it may be set up as an adjudication of the questions at issue. (*Cloud v. Wiley*, 29 Ark., 80; *Allen v. Mayor*, 9 Ga., 286; *Moore v. Williams*, 132 Ill., 589; *People v. Richert*, 159 id., 496; *Burton v. Burton*, 28 Ind., 342; *Randles v. Randles*, 67 id., 434; *Willard v. Ostrander*, 51 Kans., 481; *Creighton v. Keith* (Neb.), 70 N. W. Rep., 406; *Sage v. Harpending*, 49 Barb. (N. Y.), 166; *Stevens v. Stevens*, 76 Supr. Ct. N. Y., 332; *Paine v. Schenectady Ins. Co.*, 11 R. I., 411; *Thompson v. Griffin*, 69 Tex., 139; *Westmoreland v. Richardson*, 2 Tex. Civ. App., 175; and see *Burgess v. Hill*, 21 Mo. App., 313.)

In the present instance no appeal was ever allowed, the record showing merely that an application for an appeal was filed. The only effect of filing an application is to stop the running of the limitation of time for granting the appeal (see Rule III relating to appeals from Court of Claims), and until a motion for allowance is made (in open court, or before the Chief Justice in vacation) and the allowance ordered, the finality of the judgment can not, under the practice of any court, be attacked. The statement in appellant's brief (p. 5), "Appeal entered of record in abeyance," is manifestly erroneous. Whatever an appeal "in abeyance" may be, certainly no appeal had been "entered of record," for none had been allowed. An application and notice had been filed of record, but nothing more.

The issue in the present case the same that had been decided in No. 13793.

The appellant's supplemental brief contains the following statement (p. 4):

A different issue is presented in cases No. 13793 and No. 16261, not only because different manufacturers [manufactures?] are the basis of the two suits, but also because different and material facts were presented to the court for consideration.

Even if this statement were true the court could not entertain it, as it relates to a matter of fact, not to a matter of law. If in any case the fact of the identity of an issue therein with an issue which has already been decided in another case between the same parties is clearly shown by the record of the prior case, so that no question can arise, the court applies the doctrine of *res judicata* precisely as if the question of identity of issues had been controverted and a jury had decided that they were identical. (*Munn v. Shannon*, 86 Io., 363.) Where, however, the identity is controverted, and evidence is presented, the question of identity of issues must be decided upon the evidence, like any other question of fact. (*Amsden v. Dubuque, etc., Rwy. Co.*, 32 Io., 288; 1 Greenl. Ev., 15th ed., §532; 2 Black on Judgments, §631.) In either case the question of identity is merely one of fact, the only difference being that in the former case the record answers the question at the start, so as to leave no room for controversy, while in the latter case the question must be decided upon the evidence presented.

In case No. 13793 the issues decided were clearly shown by the record, so that it was evident from a mere inspection of that record that the sole question in issue in the present case (viz, the question of whether the reloading cartridge was covered by patent No. 212313) was raised and decided in case No. 13793. Hence the court below did not need to consider any evidence on the question of identity of issues outside the record in case No. 13793, nor was any such evidence presented; but this did not render the question any the less a question of fact; and hence the court's finding, *as a matter of fact*, that the issue was the same as that previously decided, can not be the subject of review in this court.

Appellant's theory seems to be that as the court ultimately consented to make additional findings, some of which correct in a few details the statements of the original findings of fact, it follows that the issue in the present case was not the same as in case No. 13793. All these additional findings, however, were made because the court held that they were in substance not different from the original findings and did not affect the result previously reached.¹ (Rec., 21, 23.) The appellant disputes this, saying that the amendments "reverse and

¹The statement in appellant's supplemental brief (p. 4) that "such additional facts and exhibits were not regarded by either claimant or defendant as sufficient to present the issue, and upon motion of claimant and defendant three amendments of findings, five additional findings, and ten exhibits were found," calls for a brief explanation as regards the defendant. Neither the additional findings nor the amendments to the original findings have any bearing upon the one issue upon which the case was decided, viz, that of the prior adjudication; but the claimant sought and

annul or contradict or correct" the findings made in case No. 13793. (Appellant's brief, p. 5.) Now, it is wholly immaterial how far the additional findings differ from those originally made, unless they show that the *issue* presented in the present case was not presented in case No. 13793. A different presentation of facts in a subsequent case does not weaken the force of a judgment in a previous case, if the issue was the same. Where *res judicata* is set up, the only question that can be asked is, Was the present issue raised and decided in the prior case? If it was, then it is immaterial whether there is evidence which, if produced in the prior case, would have caused it to be decided differently. The question is not, Was the prior case rightly decided? It is, Was the present issue decided in that case? The former judgment is binding until reversed on appeal taken from it, whether it was correct or not. (*Nations v. Johnson*, 24 How., 195, 202.)

Whatever differences there may be between the original and additional findings it is clear that the latter relate only to the issue of whether patent No. 212313 covers the reloading cartridge, an issue decided in the former case. It is immaterial that in that case "the cup-

obtained additional findings in regard to another issue, viz, whether patent No. 212313 covered the reloading cartridge. In view of the decision that had been made, counsel for the United States considered that this other issue was wholly irrelevant; but since the court had seen fit to make additional findings in regard thereto, it was evident that such findings ought not to be one-sided, and hence additional findings were sought and obtained for the defendant. Such additional findings would not, however, have been requested had not original findings been already made at the instance of the claimant.

anvil cartridge was the main issue." (Appellant's suppl. brief, p. 12.) It was only the main issue as regards the number of cartridges and the amount of money involved. The issue as to the reloading cartridge was just as squarely raised as that in regard to the cup-anvil cartridge, and the decision in regard thereto was just as final. Appellant's counsel now state that the reloading cartridges for which claim was made in case No. 13793 were "*experimentally* manufactured." (Suppl. brief, p. 2.) The record contains nothing to warrant such a statement. It shows that "the manufacture of the reloading cartridge" began in July, 1879 (Rec., 12), and that the petition in No. 13793 was filed April 19, 1883, nearly four years later. Presumably the United States manufactured all the reloading cartridges that were called for during that period, but even if such manufacture had been (what the record does *not* show that it was) experimental, yet, having been the subject of a claim, the issue of whether patent No. 212313 covered the reloading cartridge was raised and decided.

The statement that "the case was tried on the merits under the general traverse" (suppl. brief, p. 3) was presumably not intended as an argument against the effect given by the court below to the prior judgment. It is too well settled to need a citation of authority that the defense of *res judicata* is as valid under the general issue as when specially pleaded in bar.

It is therefore submitted that none of the appellant's contentions against the application of the doctrine of *res judicata* are maintainable, and that the appeal should be dismissed without further argument.

THE MERITS OF THE CLAIM ON THE PATENT.

If for any reason the court should see fit to hear argument in regard to the claim on the patent, it is submitted that there is nothing in the patent, when properly construed, to support the claim made in this case.

The assignments of error.

There is an apparent conflict between the appellant's brief and additional brief, on the one hand, and his supplemental brief on the other, as to what the assignments of error are. The brief and additional brief are divided into sections, numbered I to XXV, each stating that the court below erred in some point, and following this statement with an argument in support of it. The supplemental brief, on the other hand, contains, apart from the argument proper, a distinct assignment of errors, covering points numbered I to IX. Presumably these latter are intended as the real assignments of error.

Most of the errors assigned (viz, Nos. I-VI and VIII) relate to the findings of fact. It is submitted that error can not be assigned on account of the findings of fact unless the trial court below has either based its finding upon inadmissible evidence or has excluded proper evidence which, if admitted, would have necessitated a different finding. If the the trial court has so erred, a finding of the evidence admitted or rejected should be made, in order to enable this court to determine whether or not the admission or rejection involved error. In the present case the appellant has not done this, and hence there is nothing in the record to enable the court to con-

sider these assignments of error. This will be clearly seen by reviewing the assignments, as follows:

I. The drawings accompanying the caveat of April 13, 1865, the application of the same date, and patent No. 213313 are now in the record, so that the objection to their omission is cured. Whether the whole of the caveat and application, and of the application of January 23, 1872, should have been found depends upon whether they constituted "ultimate facts" or not, a question which can not be determined, as they are not in the record (unless the words "with application of claimant" in Finding XIII were meant to include in the exhibit the application of April 13, 1865, as well as the drawing); while, if they were in the record, their omission from any particular finding would not be error.

II. How far Findings V and XI are inconsistent can only be determined by a careful comparison of them, which appellant has not seen fit to make. If any statements in Finding V are corrected in Finding XI as to any material point, the court will take notice of such corrections, but the fact that such corrections were required can not be ground for an assignment of error.

III and V (there is no IV). A description of the cup-anvil cartridge was properly given in the findings in case No. 13793. As the present case was decided on the doctrine of *res judicata*, a recital of all the findings in the previous case was not improper, even if not absolutely essential. Besides, the fact that the appellant for years claimed that his patent covered the cup-anvil cartridge is a part of the history of the case, while that type of car-

tridge is part of that "state of the art" which must, to some extent, control the scope of claims in patents.

If the reloading cartridge is misdescribed in the findings (and it is submitted that such is *not* the case), such misdescription is mere surplusage, as the cartridge itself is an exhibit, and hence no error can be assigned as to this.

VI. Whether or not the "ultimate facts" are correctly shown by Finding IX could only be determined if the record of that case, or a transcript of the docket entries, were before the court. As they are not, no error can be assigned.

VIII. If the amendments to Finding XII involve indefinite statements, they will carry less weight than they would otherwise; but no error can be assigned on this ground. The statement in the last paragraph of this assignment (see also addl. brief, pp. 15, 16) that the anvil shown in the exhibits of the reloading cartridge is not the Gill patented anvil is erroneous, as they are clearly the same. In fact, the court is aware of this, as the use of the Gill anvil by the Government in its cartridges was the subject of a claim in *Gill v. United States* (160 U. S., 426).

As to Assignment VII, it is enough to state that this appeal is from the judgment of December 23, 1895, dismissing the petition, and *not* from the order of April 13, 1896, overruling the motion for a new trial.

It is therefore submitted that no error is really assigned in any of the assignments of error except the ninth and last.

The patent in the light of the file wrapper and contents.

It is submitted that patent No. 212313 was granted solely for a cartridge with an anvil plate "provided with two or more openings, whose *inner* edges nearly coincide with the edges of the central chamber of fulminate," a feature not found in the reloading cartridge.

This court has frequently held in suits on patents that the evidence contained in the file wrapper and contents of the proceedings in the Patent Office upon the application for a patent is relevant as showing the precise matter for which the patent was granted. It is true that the correspondence between the applicant for a patent and the Commissioner of Patents or his examiners can not be allowed to enlarge, diminish, or vary the *language* of a patent afterwards issued—that is, it can not have the effect of adding any words to the patent or taking any from it—but when it comes to the *interpretation* of the language used, the understanding of the applicant and the Patent Office is of some importance as evidence. (*Goodyear Dental Vulcanite Co. v. Davis*, 102 U. S., 222, 227.)

This understanding of the parties is especially important where the applicant for a patent for a combination has been compelled by the rejection of his original application to narrow his claim by the introduction of a new element, or of limitations or provisos. In such a case he can not afterwards contend that his patent should be interpreted as if the element so introduced were not an essential feature of the combination, or that the limitations or provisos should not be strictly construed against

him. (*Sargent v. Hall Safe and Lock Co.*, 114 U. S., 63, 86; *Shepard v. Carrigan*, 116 U. S., 593, 597; *Sut-ter v. Robinson*, 119 U. S., 530, 541; *Crawford v. Hey-singer*, 123 U. S., 589, 607; *Roemer v. Peddie*, 132 U. S., 313, 317; *Dobson v. Lees*, 137 U. S., 258, 265; *Knapp v. Morss*, 150 U. S., 221, 229; *McCarty v. Lehigh Val-ley R. R. Co.*, 160 U. S., 110, 119.)

Similarly, where a claim has been rejected, and such rejection acquiesced in by the applicant, this fact is im-portant as estopping him from contending that the re-maining claims, or any of them, should be so construed as to cover the subject-matter of the rejected claim. (*Morgan Envelope Co. v. Albany Paper Co.*, 152 U. S., 425, 429.)

The differences between the specification and claims of a patent as granted, and those upon which the applica-tion was made—the abandonment, rejection, or modifica-tion of claims, and the introduction of limitations or pro-visos—are disclosed by the file wrapper and contents, and by nothing else. To determine the proper construc-tion to be placed upon the claims of a patent, it is there-fore necessary “to consider the *action of the Patent Office* upon the original application of the patentee” (*Knapp v. Morss*, 150 U. S., 221, 224), or, in other words, to consider the file wrapper and contents. As is stated in *Robinson on Patents*, section 1015—

The principal documentary evidence available in actions for infringement is drawn from the files and records of the Patent Office. * * * The appli-cation for the patent and the correspondence of the applicant with the Patent Office in explanation or

assertion of his rights may be produced as declarations accompanying an act, and as tending to define the nature of a patented invention, and the relations toward it of the applicant and patentee.

Hence the facts shown by the file wrapper and contents are essentially relevant and material to an issue involving the construction and interpretation of the claims of a patent.

In view of the practice of this court to consider the file wrapper and contents, the court below was asked to make a finding of the facts as to the proceedings in the Patent Office as they appeared in the file wrapper and contents; but the court declined to do so on the ground that the proceedings in the Patent Office "do not constitute such facts as the court is required to find under Rule 1 of the Supreme Court relating to appeals from the Court of Claims." (Rec., 41.) Believing, however, that the court below was in error on this point, counsel for the appellee requested that court to include in the record the motion which had been made for a finding, and the court's action thereon, which was accordingly done, as appears from pages 38-41 of the record. Owing to an oversight on the part of the chief clerk of the Court of Claims, this portion of the record was not transmitted to this court along with the rest of the record, but was transmitted separately at a later date.

In a later case the Court of Claims took a different view of Rule 1, and has included in its findings the substance of the proceedings in the Patent Office, as evidenced by the file wrapper and contents (*Kelton v. United*

States, 32 C. Cls. R., 314; see Finding XII, pp. 329-334); so that if the findings in the present case had been made according to the present practice of the Court of Claims, a finding as to the proceedings in the Patent Office would have been made in the first instance.

The matters disclosed in the file wrapper and contents in an application for a patent must have precisely the same materiality and must be admissible in evidence to precisely the same extent in a suit against the United States in the Court of Claims as in a suit between private parties in any other court, and therefore those proceedings being before this court in the record in this case, they will be referred to as if they had been originally incorporated in the findings by the court below.

The first point of difference to be noted between the cartridge covered by the appellant's patent and the Government reloading cartridge is that in the former only a small portion of the openings in the anvil are over the fulminate chamber, while in the latter the openings are wholly over that chamber. As to this it is submitted:

THE RELATIVE POSITION OF THE VENTS AND THE CIRCULAR WALL OF THE FULMINATE CHAMBER IS A MATERIAL PART OF THE APPELLANT'S PATENT—I. E., THESE VENTS MUST BE SO PLACED AS REGARDS THE AXIS OF THE CARTRIDGE THAT ALL BUT A VERY SMALL PORTION OF EACH VENT SHALL BE FURTHER FROM THAT AXIS THAN IS THE CIRCULAR WALL OF THE FULMINATE CHAMBER.

In the appellant's original application of December 28, 1878, the specification (Rec., 38, 39) ended just before

the last paragraph on the second column, page 29 of the record, and the claims were as follows:

First. The circular plate E, constructed with central solid resisting piece *i*, and two or more perforations *k k*, substantially as described, applied within a metal case, with cylinder and rear end solid and tight, thereby requiring the insertion of the plate and charge and priming from the front, igniting the charge, and remaining fire-tight in firing as described.

Second. The circular plate 'E, constructed as described, in combination with the circular disk D, and metal solid fire-tight case A, substantially as shown and described.

Third. A circular metallic, tight-fitting plate, perforated into a central fulminate chamber, leaving a central solid or unperforated bar over the fulminate chamber, within a solid fire-tight metal case substantially as set forth.

The examiners, who, as the appellant not merely admits but goes out of his way to state in his petition (Rec., 4), "had fully educated themselves" and "understood the invention," rejected these claims; the first and third upon those of Moffatt, 53168, Tibbals, 90607, and English patent 2906 of 1865; and the second on the English patent alone. The Moffatt patent (see American patents filed with this brief, p. 2) is for a solid-headed, rimmed, centre or rim fire cartridge, inside-primed, with a removal metallic disk to serve as an anvil. The Tibbals patent (*ibid*, p. 24) is for an inside-primed centre-fire cartridge, with a folded head, reinforced by a perforated cup, which also serves as an anvil. The English patent to Millar, No. 2906 of 1865 (see appendix to this brief),

shows an inside-primed, centre-fire cartridge with a solid head, rimmed, with an anvil over the fulminate and two or more apertures through the anvil-disk, connecting the fulminate chamber with the black-powder chamber. While these cartridges differ from each other in certain details, they all bear a strong resemblance to the Hubbell device, and it may be confidently asserted that the appellant's three original claims were all properly rejected, as they manifestly covered nothing that was not to be found in at least one of these prior devices.

Forced to limit his claim to some feature which these prior devices did not contain, the appellant amended his specification by adding the paragraph (Rec., 39-40) describing the *distinguishing feature* of his invention. The gist of this new descriptive paragraph is contained in the words :

This [fulminate] chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out, but is compelled to diffuse its explosive force. * * * To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer side of this fulminate *for two purposes*; one is, to diffuse the fire from this center most thoroughly; the other is, to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker, and obtain complete resistance by the anvil bar, and yet have free escapement for the explosive force, at once from beneath the anvil plate, without any chamber or space for it to expand into under the plate.

At the same time the appellant struck out all his three original claims and substituted a single claim, as follows (Rec., 40):

The construction and arrangement of the chamber of fulminate, anvil, plate, perforations, and case, with the central-constructed, filled chamber of fulminate powder in contact and between the base of the case and the circular anvil-plate, with central anvil-bar and two or more side perforations extending from the extreme sides of the chamber of fulminate into the base of the powder charge, whereby the smallest area of resistance is presented to the fulminate explosion, and the fire is diffused in the base of the charge of powder, and the greatest resistance is presented by the front face of the plate to the powder charge, consuming the powder and securing the plate as and by the means described.

The same examiners, whose qualifications the appellant has admitted, rejected this claim as "vague, indefinite, and ambiguous," but held that the construction shown (shown, that is, in the specification and drawings) *as now understood* (*i. e.*, as explained in the new paragraph of the specification) involved patentable novelty, so that a claim might be allowed, if specific and well defined. (Rec., 40.)

The appellant then further amended the amendment to his specification by inserting the reference to the solid head of the shell, and he substituted the following as the single claim for which a patent was asked:

In the bottom of a solid metallic-flange cartridge case, or shell, the combination of a circular base inclosing a central chamber of fulminate, and an anvil over the fulminate provided with two or more openings,

whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described. (Rec., 40.)

As so limited and defined the claim was allowed and the patent granted.

It is clear from this comparison of the original specification and claims with the amended specification and the claim ultimately allowed, that whether the appellant be entitled to a broad construction of his claim or not, the claim itself is a very narrow one. The claim is *not* for the circular plate E with solid anvil bar and perforations, applied within a solid-head cartridge shell (first rejected claim), *nor* is it for the plate E constructed as described, in combination with the circular disk D and the solid-head cartridge shell (second rejected claim), *nor* for a circular plate perforated into a central fulminate chamber, leaving a solid anvil bar over the fulminate chamber, within the solid-head cartridge shell (third rejected claim), *nor* for the construction and arrangement of the fulminate chamber, anvil plate, perforations, and case, as described in the specification, so as to diffuse the fire in the base of the powder charge and consume the powder (first amended claim, rejected). These mechanical combinations are found in the appellant's cartridge, but they are not what constitute its novelty, nor are they covered by the patent. The patent is not granted for a claim for the combination in the bottom of a solid metallic-flanged cartridge case or shell of a circular base inclosing a central chamber of fulminate, and an anvil over the fulminate provided with two or more openings. Such a claim would not have differed from those that were rejected. The one

sole feature of the combination which entitled it to be patented was this, that the anvil plate E had "two or more openings whose *inner* edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge."

It was not until the appellant introduced into his specification the new paragraph stating that "The distinguishing feature of my invention is the organized construction. * * * In this organization the fulminate * * * is contracted into a * * * small central chamber and fills it. * * * This chamber at its side or outer extreme edges communicates directly and exclusively with the powder charge. * * * To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and *the perforations are at the extreme outer sides of this fulminate*;" that the examiners stated that the construction involved patentable novelty, and it was not until the appellant specifically described the combination which he sought to patent as containing the element of an anvil plate with openings placed *in a particular position* with regard to another element (i. e., "openings whose inner edges nearly coincide with the edges of the central chamber of fulminate") that any patent was granted. The state of the art when the patent was granted (which will be alluded to below) demonstrates the propriety of the action of the examiners in refusing to allow a patent until the appellant had limited his claim to the particular combination finally described therein, but even if the examiners' views had been incorrect and their action improper, even if they ought not to have refused the application with the claims as originally worded, the

fact remains that the words, "whose inner edges nearly coincide with the edges of the central chamber of fulminate," words describing the position of the openings in the anvil plate E, inserted in the claim, after the rejection, are the vital words of the patent, without which, or their equivalent, it would not have been granted, and that no form of cartridge construction to which these words are not applicable can possibly be regarded as covered by the patent. As was said in *Shepard v. Carrigan* (116 U. S., 593, 596):

Where an applicant for a patent to cover a new combination is compelled by the rejection of his application by the Patent Office to narrow his claim by the introduction of a new element, he can not after the issue of his patent broaden his claim by dropping the element which he was compelled to include in order to secure his patent. (Citing *Leggett v. Avery*, 101 U. S., 256, and other cases.)

The description of the openings in the anvil plate as openings "whose inner edges nearly coincide with the edges of the central chamber of fulminate," is manifestly such a limitation as must prevent the claim from receiving a broad interpretation.

In patents for combinations of mechanism, limitations and provisos, imposed by the inventor, *especially such as were introduced into an application after it had been persistently rejected*, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers. (*Sargent v. Hall Safe and Lock Co.*, 114 U. S., 63, 86.)

In the reloading cartridge the whole of the vents are directly over the fulminate chamber, and their outer, not

their inner, edges coincide with the edges of the latter. Hence this type of cartridge is clearly outside of the claim in patent No. 212313.

The patent in the light of the state of the art.

In view of the express limitation introduced into the claim by the appellant himself, the state of the art at the time the patent was granted is really immaterial, but as the court below did not consider that a finding as to the limitations placed upon a patent by the appellant himself was authorized by the rules of this court, it may be as well to refer to the state of the art in order to show that even if it did not appear affirmatively from the record that the appellant had himself limited the scope of his claim, it could not, in any event, be entitled to any other but a strictly limited interpretation.

The British patent to John Millar, No. 2906, of 1865 (see appendix to this brief), shows both an outside-primed cartridge, like that made by the Government, and an inside-primed one, like the appellant's. The latter is shown with a solid, flanged head, a central fulminate chamber, and an anvil disk over the fulminate, ventage being secured either by holes through the disk or by notches at the outer portion. The holes were shown directly over the fulminate chamber, and this position of the holes constitutes the only difference between this type of cartridge and that described in the appellant's claim. The notches would manifestly secure a much less free ventage than would the holes, as only a portion of the notches would be over the fulminate chamber. In fact,

these notches could practically be described as "openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge," and it is difficult to see how, in view of the existence of this form of the Millar device, the appellant's cartridge, as described in his claim, covered any feature of patentable novelty whatever.

Appellant's counsel seeks to evade the effect of this patent by objecting that the detonating substances mentioned are chlorate of potash and amorphous phosphorus, which are kept separate until struck by the plunger, whereas the claimant's patent mentions "fulminate of mercury or detonating powder," called in the claim simply "fulminate." Whatever the respective merits of chlorate of potash and amorphous phosphorus on the one hand, and of fulminate of mercury on the other, for the purpose of ignition by concussion, they were, mechanically speaking, equivalents, performing the same function (*viz*, ignition) in the same way (*viz*, on being struck).

For the convenience of the court copies of the following patents are filed with this brief:

The patent to Moffatt, No. 53168, March 13, 1868, shows various types of cartridge shell, including the solid-flange type (figs. 8, 12), and a metal anvil of peculiar shape placed over a percussion wad and held down by lugs in the inside of the shell. The ventage was exceedingly free and directly over the percussion wad, which had a fulminating material applied at its center and around its periphery, so that the cartridge would be discharged if struck either at the center of the base or near its periphery.

The patent to Gatling, No. 78953, June 16, 1868, shows a cartridge with a hollow-rimmed head, reinforced by a cap, a central fulminate chamber, with an anvil over it, with vents directly over the fulminate chamber.

The patent to Tibbals, No. 87125, February 23, 1869, shows a cartridge shell with a substantially solid flange, the said flange being, however, cut into a little from the inside in order to allow an anvil disk to be sprung into the enlarged portion of the inside of the shell and held there, a central fulminate chamber, and a vent, through the anvil disk over one side of the fulminate chamber.

The patent to Roberts, No. 87297, February 23, 1869, shows a hollow-flanged shell, the hollowed portion holding in place an anvil with a cup containing fulminate on the lower side and apertures at the side of the cup.

In the patent to Van Vechten, No. 87735, March 9, 1869, the anvil, which is cup-shaped, is described as "having at or near its centre one or more holes for the passage of the fire from the priming to the charge of powder."

The patent to Tibbals, No. 90607, May 25, 1869, shows a hollow-rimmed shell, reinforced by an anvil cup, with two or more small holes directly over the fulminate.

These patents, all for inside-primed cartridges, show various types of anvils and various positions of the vents, and three of them show a solid-flanged head. Certainly there was nothing in the appellant's combination that was not covered by what had preceded it, except the position of the vents, "whose inner edges," i. e., the edges towards the axis of the anvil plate, "nearly coincide with

the edges of the central chamber of fulminate," and hence the appellant's claim must be limited to that precise construction, whether the proceedings in the Patent Office be inquired into or not.

Appellant's counsel seek to meet these patents with the irrelevant answer that they do not show anticipation. (Suppl. brief, pp. 24-26.) They were not introduced to show anticipation of the precise combination for which patent No. 212313 was granted, but to show that the only feature in that combination which gave novelty to it was the precise position of the vents in the anvil plate, a feature which is not found in the reloading cartridge. Appellant's application in 1878 showed a cartridge which differed but slightly from several that preceded it, so that a broad construction would be impossible even if the language of the claim were not itself such as to limit it very narrowly.

Besides the state of the art as shown by these patents, the findings show that the Government had made and used the reloading cartridge, with very nearly its ultimate construction, from the year 1872. The case was exactly the same, and the only difference in the organized cartridge was in the precise construction of the anvil disk. Various types of disk were used, perforated by notches or openings so as to secure adequate ventage from the fulminate chamber to the aperture in the base of the powder chamber. (Rec., 23.) These disks did not have the "groove extending directly across its face and backward through the edges," which constituted the essential feature of the Gill anvil disk (Rec., 34), but they were operative disks, and the cartridges so organized were

made and used in large quantities. This fact still more clearly limits the claim of patent No. 212313 to a cartridge with a disk with vents "whose *inner* edges nearly coincide with the edges of the central chamber of fulminate."

In this connection appellant's criticism (Suppl. brief, p. 10) of Finding VI may be answered. The words of that finding, "This cartridge contains only the black powder and bullet," do not refer to the complete cartridge, but they clearly refer only to the interior of the shell as distinguished from the outside pocket in its head. It is true, as the finding states, that various types of anvil disks can be and were used with this type of shell, and the fact that the cartridge must be primed before it is loaded does not derogate from the correctness of the description of its construction and operation as given in Finding VI.

Differences between Hubbell cartridge and reloading cartridge are essential.

The contention of appellant's counsel, that the reloading cartridge is identical with that covered by patent No. 212313, involves utter disregard of two essential differences, viz:

(1) The difference in the shape and position of the vents.

(2) The difference in the priming.

The one feature of the Hubbell cartridge which distinguishes it from prior inside-primed cartridges is that the anvil plate has "two or more openings whose *inner*

edges nearly coincide with the edges of the central chamber of fulminate." The specification states the purpose of this construction to be twofold: First, to compel the diffusion of "the explosive force of the fulminate" "into the base of the powder charge," and, second, to leave a solid anvil over the fulminate to resist the blow of the striker. That part of the anvil in the reloading cartridge which receives the blow of the striker is narrower than the corresponding part of the anvil in Hubbell's cartridge; but the chief difference between the two constructions is that in Hubbell's device only a portion of each vent is over the fulminate chamber, their "inner edges nearly coinciding with the edges" of that chamber, their outer parts being over the unperforated part of the disk D, while in the reloading cartridge the vents are wholly over the fulminate chamber, and do not lead directly to the powder chamber, as the Hubbell vents do, but lead to a channel cut across the upper face of the anvil, and by this to a hole in the base of the powder chamber. By this latter construction, while the resisting force of the anvil at its centre is not diminished, the explosive force of the fulminate is compelled to enter the powder chamber in a central stream, instead of being compelled to diffuse itself as in the Hubbell device. This diffusion, which is impossible in the reloading cartridge, the appellant considered "the distinguishing feature" of his invention, as the importance attached to it in the specification clearly shows.

In seeking to identify the reloading cartridge with the appellant's device his counsel deny that the position of the vents is material to the combination (see brief, p. 3,

par. VI), and do not regard the words "inner edges" as in any way limiting the description of the vents in the claim. So strongly do they hold to this view that in the quotation from the claim in the supplemental brief (p. 13, line 16) the word "inner" is omitted, evidently because they thought it immaterial whether this word appeared in the quotation or not.

It has already been shown, by reference both to the file wrapper and contents and to the state of the art, that the claim in the Hubbell patent would not and could not have been allowed had the position of the vents not been made a limitation of it, but even if the patent alone were before the court its language limits the claim so explicitly that it could not be extended to cover a cartridge where the vents of the anvil disk are constructed as in the re-loading cartridge.

Appellant's counsel seek to belittle this essential difference in the construction of the vents by stating that the powder runs down through the hole in the base of the powder chamber and lies in the groove across the upper face of the anvil. (Suppl. brief, 10-12.) The fact that a few loose grains of powder fall into the groove (or even drop through the notches on to the fulminate) does not affect the operation of the fulminate when exploded. Whatever powder drops through drops loosely, and is not rammed tightly down, as is the powder in the powder chamber. When the fulminate is exploded, its flame ignites these loose grains; but as the explosive force of the fulminate is vastly greater than that of a few loose grains of powder, it simply sweeps them along as they ignite, but enters the powder chamber with practically the same

force and in the same way as if these loose grains had not been in the groove at all. Their effect is too insignificant to be taken note of, and hence, as regards the way in which the fulminate flame enters the powder chamber, it is not true to say that "the groove constitutes the bottom of the powder chamber."

Another essential difference between the two types of cartridge is that the Government's cartridge is outside-primed, the appellant's inside-primed.

The appellant's specification says "open only at the front end B, to be primed and loaded at this front opening." So, too, the first claim in the original application for the patent expressly describes the metal case as being made "with cylinder and rear end solid and tight, thereby *requiring* the insertion of the plate and charge and priming from the front." (Rec., 40.) These descriptions make it clear that the cartridge covered by the appellant's patent was necessarily inside-primed, and could not be outside-primed, and hence that in the modification suggested, viz, "the fulminate chamber C may be recessed or formed in the metal of the circular plate E, with central bar *i*, and two side perforations, *k, k*, over it, dispensing with the paper," the chamber C is intended to be recessed from the upper side of the base of the cartridge and not from its lower side, as in the Government cartridge. The same intention is manifest from the rest of the specification, for there being no provision for closing the hole that would be left in the base of the cartridge if the fulminate chamber were recessed from the outside, it is clear that such a modification would be inoperative.

The words, "in the bottom," in the claim of the patent must therefore be understood as limiting the claim to an inside-primed cartridge, while the primer of the Government cartridge "is not in the bottom of the shell" in the sense in which the primer of the appellant's cartridge is, but is in an outside pocket. (Rec., 18.) That this distinction is a substantial one becomes evident when it is reflected that one of the objects for which the Government cartridge is made is that it should be capable of being reloaded. With an outside-primed cartridge, the cup which holds the fulminate is used but once, but the cartridge shell itself is not injured by the blow of the hammer; whereas the base of an inside-primed cartridge is indented by the blow, and must be flattened out before it can be reloaded, while, as this part of the base is very thin, it evidently can not stand many blows. For reloading purposes an outside-primed cartridge is manifestly superior.

The appellant's cartridge must be crimped in order to hold the anvil and the disk D in place, whereas no such crimping is required in the Government cartridge. This is also a substantial difference between the two, because the appellant's cartridge would have to be straightened out and recrimped every time it was reloaded, a fact which would not only make the reloading process much more difficult than with the Government cartridge, but which would also render reloading more than once or twice impossible, owing to the weakening of the metal. The retention of the anvil and disk in the appellant's cartridge by crimping, or some equivalent means, being therefore

indispensable, the words in the claim, "substantially as described," must be understood as including in the claim substantially the method of holding the anvil and disk in place when the cartridge is fired described in the specification, a method which has no equivalent in the Government cartridge.

The caveat and various applications do not help the appellant's case.

It seems to be contended (Suppl. brief, p. 22) that the appellant's caveat of 1865 and certain rejected applications for patents for cartridges, all of which are referred to on pp. 13-16 of the record, showed that the appellant had invented, prior to the date of the application for patent No. 212313, a type of cartridge substantially the same as the reloading cartridge, or at least that he had invented a "system" which reached perfection in his patented cartridge. It is submitted that even if this contention were correct it would be wholly irrelevant, because the issue as between the reloading cartridge and that covered by patent No. 212313 is simply whether the two are the same. Unless the reloading cartridge is covered by patent No. 212313, the Government has a right to use it without regard to who may have invented it.

There is, however, nothing in the record to warrant the contention. In regard to the caveat of April 13, 1865, the court below has found that "no method of communication from the fulminate to the powder was provided, nor any mention made of an anvil." This

being so the caveat can not from any point of view have any bearing on the case whatever.¹

The application of April 13, 1865, was for a centre fire cartridge with hollow flange, the interior of the flange holding the rim of a perforated anvil plate. Not only was this device manifestly different from that shown in the patent No. 212313, but as the application for a patent for the former was rejected, the record fails to indicate to what extent, if at all, it contained any feature that was a patentable novelty in 1865.

The application of April 25, 1872, was for a cartridge with "a circular metallic anvil, perforated and secured by a bite of the case of the same metal immediately in front of the fulminate." This type of cartridge undoubtedly resembles that for which patent No. 212313 was granted, but the vents or openings through the anvil disk are not confined to any particular position, as they are in the latter type of cartridge. Presumably, it was this failure to indicate the position of the vents which rendered the claim too broad, and necessitated its rejection.

It is to be observed that the petition in the present case alleges not merely that the appellant's successive applications were all for substantially the same invention, but also that the reason why no patent was granted until 1879 was because the examiners up to that time failed to understand his invention. An examination of the applications, however, shows directly the contrary of this, namely, that the rejected applications were all for

¹ Appellant's brief (p. 7) refers to a model of the cartridge to which the caveat refers. Appellee's counsel have repeatedly asked to see this model, but apparently it can not be found.

much broader claims than that allowed in 1879, and that the action of the Patent Office has been thoroughly consistent all along.

THE DAMAGES CLAIMED.

In view of what has been said above, it seems superfluous to point out that there was no implied contract in the present case or to dwell on the request of appellant's counsel (Suppl. brief, pp. 28-29) that this court should not merely reverse the judgment, but should also direct judgment to be entered in the appellant's favor for a certain sum, viz, \$157,508.98.

Even if it were possible that the judgment should be reversed, it is submitted that the findings do not warrant the further step desired. The findings show the cost of the reloading cartridges which were involved in case No. 13793, but not of those for which the present suit is brought. Those in the former suit were comparatively few (the claimant says that they were made experimentally), and it is to be presumed that the cost of the much larger quantity involved in the present suit was somewhat less per thousand, it being a general rule that the cost of each separate article decreases with an increase in the number made. Moreover, what would constitute a reasonable royalty for cartridges made before March 31, 1883 (which was what was found in case No. 13793), would not necessarily constitute a reasonable royalty after that date, as rates of royalty depend on the number of devices in the market for the purpose of securing the same end though by different means, and it is probable that this number did not remain the same.

In computing the sum for which they ask judgment, appellant's counsel have treated primers for reloading as if they were shown to have been used. Even if the reloading cartridge as a whole was covered by the claimant's patent, its primer by itself (i. e., the Gill patent anvil and a small cup containing fulminate) was not, for, as appellant's counsel repeatedly state, the patent is for "an organized cartridge." Until the primer was affixed to a cartridge nothing existed which came within the patent, and there is no *evidence* that any of the 65,841,675 primers referred to were ever so affixed. Besides, the royalty of \$1.50 per thousand was computed on the cost of *new* cartridges (5 per cent on \$30 per thousand), whereas if an old cartridge is reloaded the cost of the shell must be deducted; but appellant's counsel have not taken this into account.

Hence it is clear that in any event this court has not sufficient data before it to enable it to assess damages, even if it saw fit to reverse the judgment.

For the reasons stated in the previous portion of this brief, it is, however, submitted that not merely there should be no assessment of damages, but that the judgment of the court below should be affirmed.

CHARLES C. BINNEY,
Special Attorney,

L. A. PRADT,
Assistant Attorney-General,
for Appellee.

AD. 1865, Nov. 11, N^o 2906
MILLAR'S SPECIFICATION

FIG. 1.

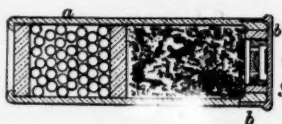


FIG. 2.



FIG. 3.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 7.



FIG. 10.

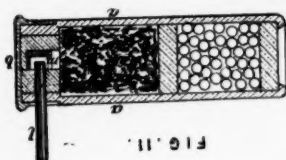
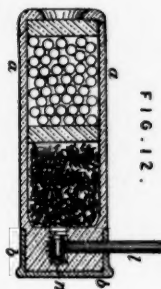
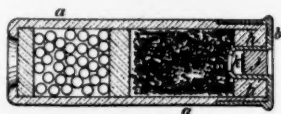


FIG. 8. FIG. 4. FIG. 9.

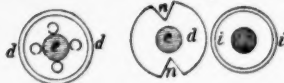


FIG. 6.



APPENDIX.

[This patent is a part of the record (see p. 24), and is printed here on account of appellant's failure to have it printed with the rest of the record.]

A. D. 1865, 11th NOVEMBER. No. 2906.

CARTRIDGES.

Letters patent to John Millar, of Bethnal Green, in the County of Middlesex, Physician, for the Invention of "Improvements in cartridges."

Sealed the 8th May 1866, and dated the 11th November 1865.

Specification in pursuance of the conditions of the Letters Patent, filed by the said John Millar, in the Great Seal Patent Office, on the 11th May 1866.

To all to whom these presents shall come, I, John Millar, of Bethnal Green, in the County of Middlesex, Physician, send greeting.

Whereas Her most Excellent Majesty Queen Victoria, by her Letters Patent, bearing date the Eleventh day of November, in the year of our Lord One thousand eight hundred and sixty-five, in the twenty-ninth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said John Millar, Her special licence that I, the said John Millar, my executors, administrators, and assigns, or such others as I, the said John Millar, my executors, administrators, and assigns, should at any time agree with, and no others, from time

to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "Improvements in Cartridges," upon the condition (amongst others) that I, the said John Millar, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

Now know ye, that I, the said John Millar, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, reference being had to the Drawings hereunto annexed, that is to say :

My Invention refers to those cartridges which contain their own ignition, and I make them as follows: I take a paper, metal, or compound cartridge case, and first insert a disc or wad, upon which I cause chlorate of potash and emery powder of charcoal to adhere; or I simply coat the inside of the base of the cartridge with the same materials. I next cut a disc or wad to the diameter of the inside of the base of the cartridge case, make notches or perforations in it, and a slight recess which I nearly fill with varnish or other suitable holding and protecting agent mixed with amorphous phosphorus alone, or combined with sulphuret of antimony or emery powder, or both. I insert the disc so prepared above the first mentioned, so that the compounds are opposite and face, but are not in contact with each other. I then charge the case in the usual manner. Upon a piston or plunger be-

ing driven against the centre of the back of the cartridge case the chlorate of potash and the amorphous phosphorus are driven in contact, and explosion takes place.

Figure 1 of the accompanying Drawings is a section of a cartridge constructed according to my Invention.

a is the cartridge case made of paper with a metal base *b*. The inside of the base *b* is supplied with chlorate of potash and emery powder at *c*, and caused to adhere thereto, or introduced upon a disc or wad. *d* is another disc or wad, shown detached in Figure 2; this disc is dished or recessed, and into the recess *e* I drop varnish or other like suitable holding agent mixed with amorphous phosphorus, either alone or combined with sulphuret of antimony or emery powder, or both. The disc *d* is formed with holes *f* or with notches, as in Figure 4; *g* is a compressed paper ring to fill up the annular space between the disc *d* and the case *a*. Upon a piston or plunger being driven against the centre of the base *b* the chlorate of potash *c* is driven into contact with the phosphorus in the recess *e*, and explosion takes place and ignites the powder through the holes *f* or notches in the disc *d*.

Figure 3 shews a cartridge in which the case *a* is of metal, and in which the disc *d* is of the same diameter as the inside of the case. In this cartridge also I sometimes form the disc *d* with notches *n*, as in Figure 4, instead of with the holes *f*.

Figures 5 and 6 shew a cartridge in which the disc *d* is flat, the chlorate of potash and amorphous phosphorus being kept apart by a paper ring *h*.

Figures 7, 8, and 9 represent a cartridge case, the case *a* of which is entirely of paper; the chlorate of potash instead of being applied directly to the inside of the base of the cartridge or on a flat disc is carried in a cupped disc *i*.

Figure 10 represents a cartridge in which the chlorate of potash is carried on the front of a plug *j* fitted into a tubular aperture in the rear of the cartridge. The tubular aperture is turned in at *k*, and an aperture is left in this part as shown. The amorphous phosphorus is applied to the rear of the part *k*.

Although I have described the chlorate of potash as being at the rear of the amorphous phosphorus, the position of these two materials may be reversed in any of the arrangements described.

Fig. 11 represents my Invention applied to a pin cartridge; here the chlorate of potash is carried on the inner end of the pin *l*, and the amorphous phosphorus in the inside of a cap *m*.

Figure 12 represents another pin cartridge, in which the pin does not carry either of the chemical substances, but in which one of them is carried inside a cap *m*, and the other inside another cap *n*, so that they face each other.

And having now described the nature of the said Invention, and in what manner the same is to be performed, I declare that I claim, forming cartridges substantially as herein-before described and represented in the accompanying Drawings, in which chlorate of potash and amorphous phosphorus are placed in such relative positions that they do not come in contact until a piston or plunger is driven against the cartridge case when they are forced together and explosion takes place.

In witness whereof, I, the said John Millar, have hereunto set my hand and seal, this Eleventh day of May, One thousand eight hundred and sixty-six.

JNO. MILLAR. [L. S.]

Statement of the Case.

HUBBELL v. UNITED STATES.

APPEAL FROM THE COURT OF CLAIMS.

No. 198. Argued April 13, 14, 1898. — Decided May 31, 1898.

| | | | |
|------|-----|------|-----|
| 171 | 208 | 171 | 208 |
| L-ed | 186 | L-ed | 186 |
| 179 | 79 | 101 | 386 |

On the findings and the facts detailed in the statement and in the opinion of this court, it is held that a former judgment of the Court of Claims in an action by Hubbell against the United States in favor of the defendant was upon the same cause of action which is set up in this suit, and, it not having been reversed, or set aside, or appealed from, the claim herein set up is *res judicata*, and the plaintiff is estopped from prosecuting it in this action.

THIS was an appeal from a judgment of the Court of Claims dismissing the petition of William Wheeler Hubbell, who, as patentee of an "improvement in cartridges," claimed that the United States had manufactured and used cartridges covered by his patent under an implied contract to pay a reasonable royalty therefor.

The petition contained, amongst others, the following allegations: That "your petitioner is the first and original inventor of an improvement in cartridges, for which letters patent of the United States were granted to him in due form of law, and, according to law, dated and issued the 18th day of February, A.D. 1879, vesting in him the exclusive right to make, vend and use the same for seventeen years from the date thereof.

"Your petitioner has pending a suit for compensation up to March 31, 1883, case No. 13,793, in the Court of Claims, and has never sued any officer nor brought any other suit than that before this present petition.

"Your petitioner prays for an account of the full and entire number of the said cartridges made or used by the defendant, its officers or employes in its service, or for distribution to the States, since the said March 31, 1883, to be separately stated when ordered, and for leave to make the same a part of this petition when precisely ascertained by amendment.

Statement of the Case.

"Your petitioner further claims a just compensation for the making or use by the defendant, its authorized officers or employés, for its service, of his said patented invention of cartridge, to wit: he claims the sum of one hundred and ten thousand dollars due to him on this behalf by the United States from the 31st March, 1883, up to May 31, 1888.

"And he prays for judgment for all making or use of his said patented invention from the said 31st March, 1883, to said 31st May, 1888, by the defendant, its authorized officers or employés in its service, or on its behalf, in pursuance of law, in the sum of one hundred and ten thousand dollars, with leave to amend his petition in this behalf when the precise numbers have been duly reported by the proper departments of the United States."

Upon the trial of this case the Court of Claims made, amongst others, the following finding:

"The facts in this case are the facts already found in case No. 13,793, between the same parties as to the same subject-matter, except as to the time since the beginning of the other action, during which time, to wit, from the beginning of the other action to the beginning of this action, the Government manufactured cartridges of the same form and kind as those described in these findings, known as the 'reloading' cartridge, in which said case No. 13,793 the following proceedings were had and the following facts were found, which facts are now found herein and are hereto annexed, as follows, to and including finding VIII."

The IXth finding is as follows:

"The following are, in substance, the proceedings had in case No. 13,793 between the same parties:

"April 19, 1883. Petition filed.

"May 18, 1883. Amendment to petition filed by allowance of judge at chambers.

"June 4, 1883. Traverse filed.

"July 25, 1883. Amendment to petition filed and allowed.

"October 2, 1884. Amendment to petition filed and allowed.

"December 15, 1884. Amendment to petition allowed.

"January 10, 1885. Claimant's requests for facts and brief filed.

Counsel for Appellant.

"April 9, 1885. Additional brief for claimant filed.

"April 13, 1885. Defendants' requests for facts and brief filed.

"April 16, 1885. Argued and submitted.

"April 16, 1885. Claimant's brief of argument filed.

"April 20, 1885. Waiver filed by claimant.

"June 1, 1885. Davis, J., filed the opinion of the court. Petition dismissed. Findings of fact filed.

"August 14, 1885. Motions for new trial, amendment of findings and for reversal of judgment filed by claimant.

"August 21, 1885. Application for appeal filed by claimant.

"December 14, 1885. Motion of claimant for new trial overruled, with leave to submit to the consideration of the court. Findings II, III, IV amended in the form requested by claimant in his motion, subject to objection of the defendants to their allowance.

"October 8, 1886. Claimant's request for findings of fact filed under order of court.

"March 15, 1887. Requests, etc., of October 8, 1886, ordered to law docket.

"April 15, 1889. Motion to amend findings continued.

"November 18, 1889. Continued.

"November 12, 1891. Motion of claimant to amend order of court filed.

"November 16, 1891. Motion of claimant to amend order of court heretofore entered as to the evidence to be used on the trial allowed, subject to objections of defendants on the argument."

Upon these and other facts found, the court dismissed the petition, but as no opinion was filed, the reasons for this judgment do not appear.

Subsequently additional findings were made, but as they are not material, they are not here repeated.

From the judgment of the Court of Claims dismissing his petition, petitioner applied for and was allowed an appeal to this court.

Mr. F. P. Dewees and Mr. George S. Boutwell for appellant.

Opinion of the Court.

Mr. Charles C. Binney for appellees. *Mr. Assistant Attorney General Pradt* was on his brief.

MR. JUSTICE BROWN, after stating the case, delivered the opinion of the court.

As the claimant in his petition relies only upon the patent of February 18, 1879, No. 212,313, for an improvement in cartridges, and as the proceedings in the former suit in the Court of Claims were based, in part at least, upon this patent, it will not be necessary to refer to any prior patents.

The only defence we are called upon to consider is that of *res adjudicata*. As bearing upon this defence the following facts are pertinent :

April 19, 1883, claimant filed his petition in the Court of Claims for a royalty upon cartridges and primers alleged by him to have been manufactured by the United States under his patents, between February 18, 1879, and March 31, 1883 ;

June 1, 1885, this petition, after having been several times amended, was dismissed and findings of facts filed ;

August 14, 1885, motions for new trial, amendment of findings, and for reversal of judgment were filed by the claimant ;

August 21, 1885, application for appeal was filed by claimant, but such appeal does not appear to have been allowed ;

December 14, 1885, motion for new trial was overruled by the court, and the claimant was given leave to submit to the consideration of the court certain amended findings, subject, however, to objection of the defendants as to their allowance ;

October 8, 1886, claimant's request for findings was filed under order of the court, and on March 15, 1887, it was ordered to the law docket ;

The argument was deferred from time to time until November 16, 1891, when the motion of claimant to amend an order of court as to evidence was allowed subject to the objections of the defendants on the argument.

The petition under consideration was filed June 11, 1888,

Opinion of the Court.

after the first petition had been dismissed by the Court of Claims, and is based upon the patent issued February 18, 1879, which was one of the patents involved in the first petition. A claim is made in this petition for royalty upon cartridges manufactured, in accordance with this patent, and used by the United States for nearly six years prior to the filing of this petition, but subsequent to the time of the filing of the first petition.

In this connection the court has found that the facts in the case under consideration are the same as those in the prior case, except as to the time since the beginning of the other action, during which time, to wit, from the beginning of the other action to the beginning of this action, the Government manufactured cartridges of the same form and kind as those described in these findings.

1. As the prior action was between the same parties, and was based in part, at least, and principally, upon the same patent, it would appear that the judgment of the court dismissing the petition would operate as a complete estoppel to the present suit, unless the proceedings subsequent to the judgment in the former suit in some way deprived that judgment of its force and effect as *res adjudicata*. 3 Robinson on Patents, § 1017.

While the record of the former case was not sent up with the transcript from the Court of Claims, it appears from the petition in the case under consideration that, at the time the petition was filed, there was a suit pending by the petitioner in the Court of Claims in case No. 13,793, for compensation up to March 31, 1883; and, in the findings, that the facts in both cases were the same, except as to the time covered by the petitions. The identity of the two actions with respect to the parties, the subject-matter and the facts sufficiently appear. As it further appears that the petition in the former case was dismissed upon an opinion filed and certain findings of fact, it will be presumed to have been dismissed upon the merits, *Loudenback v. Collins*, 4 Ohio St. 251; and that such dismissal covered every question put in issue by the pleadings, including the validity of the patent and its use by the defendants.

Opinion of the Court.

But if there were any doubt with regard to this point, it would be resolved by an inspection of the opinion of the court (which may be examined for the purposes of identification), as it is published in 20 Court of Claims, 354, wherein it not only appears that the case was considered and disposed of upon the merits, but the court concludes its opinion (p. 370) in the following language:

"Upon our construction of the patent in issue the Government cartridges do not infringe the claimant's; but if we are in error as to this, still the claimant cannot recover, as the essential characteristics of his invention now found in the Government cartridge were developed by officers of the army in 1864. That is, if the relative position of the vents and the wall of the fulminate chamber is a material part of the claimant's patent, the Government has not infringed, this feature not appearing in its cartridges; but if this position is not material, still the claimant cannot recover, as the other characteristics of his invention, found in the cartridge now used by the defendants, were introduced by them prior to the use of the patent or the filing of the application for it, and even prior to the application of 1865."

Whether the reasons given by the Court of Claims for the dismissal of this petition are correct or not; whether, indeed, this judgment were right or wrong upon the facts presented, is of no importance here. If such judgment were based upon an erroneous view of the claimant's patent, it was his duty to have promptly taken an appeal to this court, where the whole case would have been reopened and the error of the Court of Claims, if such there was, would have been rectified.

It is insisted by the claimant that in the former action the main contention arose upon the manufacture and use of what was known as the "cup-anvil cartridge," together with a certain reloading cartridge, which had been experimentally manufactured, and that no claims for the "cup-anvil cartridge" or for the reloading cartridge in that suit are in issue in the case at bar. The suit, however, was upon the same patent, and it was found by the Court of Claims to have been upon the same facts, and we think the estoppel operates upon every-

Opinion of the Court.

thing which was, if not upon everything which might have been, put in issue in the former case. The presumption is that the issues were the same, and if they were in fact different, it was incumbent upon the claimant to show that the prior case was decided upon questions not involved herein. We have before us only a decision upon the merits, and upon the same state of facts, of a claim identical with this, and we perceive no reason why it should not operate as an estoppel.

But there seems to be nothing upon which to base claimant's argument that the issues were not the same. The findings show that the manufacture of the reloading cartridge with the grooved anvil disk, referred to in finding VI, commenced at the Frankfort Arsenal in the month of July, 1879, and that from February, 1879, to March 31, 1883, being the period covered by the first suit, the United States manufactured 3,866,352 reloading cartridges. We see nothing to indicate that these reloading cartridges were manufactured experimentally, or that the issue as to these cartridges was not presented and decided in the former case. The claim in the present suit is also for reloading cartridges.

But, even if a somewhat different theory or state of facts were developed upon the trial of the second case, the former judgment would not operate the less as an estoppel, since the patentee cannot bring suit against an infringer upon a certain state of facts, and after a dismissal of his action, bring another suit against the same party upon the same state of facts, and recover upon a different theory. The judgment in the first action is a complete estoppel in favor of the successful party in a subsequent action upon the same state of facts. Walker on Patents, § 468; *Duboise v. Phil. Wilm. & Balt. Railroad*, 5 Fisher, 208; *Bradley Mfg. Co. v. Eagle Mfg. Co.*, 57 Fed. Rep. 980.

2. It only remains to consider, then, whether any proceedings taken in the Court of Claims since the dismissal of such petition deprived its judgment of its character as an estoppel. A motion for a new trial was made August 14, 1885, but as this motion was overruled in the following December, clearly this would not deprive the judgment of its efficacy as a plea

Syllabus.

in bar. Indeed, it may well be doubted whether the pendency of a motion for a new trial would interfere in any way with the operation of the judgment as an estoppel. *Harris v. Barnhart*, 97 California, 546; *Chase v. Jefferson*, 1 Houston, (Del.) 257; *Young v. Brehe*, 19 Nevada, 379.

3. It further appears that on August 21, 1885, an application for an appeal was filed by the claimant, but as this appeal was never allowed or perfected, and as it does not appear that a transcript of the record was ever filed in this court, it is obvious that the authorities which hold that an appeal perfected to a superior court vacates the judgment of the court below, have no application to this case.

We are therefore of opinion that the defence of *res adjudicata* is sustained, and the judgment of the Court of Claims dismissing the petition is, accordingly,

Affirmed.
